A350

Airworthiness Limitations Section (ALS) Part 4 System Equipment Maintenance Requirements (SEMR)

-

Revision 06

ISSUE: JUN 30/21

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REVISION STATUS

The ALS Part 4 is approved and Variations must also be approved.

The technical content of this document is approved under the authority of the DOA ref. EASA.21J.031.

Note: the present Revision includes ALS data already approved either by EASA for major changes or by Airbus under DOA privilege for minor changes.

REVISION NUMBER	APPROVAL REFERENCE	APPROVALDATE
06	V050421060	JUN 30/21

This Revision contains all approved changes to A350 ALS Part 4 since the last Revision.

This includes changes published through the following Variations**:**

VARIATION NUMBER	REASON OF THE VARIATION
5.1	MOD 116038 defines and install water resistant ICP ENG START & ECAM CONTROL PANEL. This Variation aims at providing instructions and airworthiness limitations following embodiment of MOD 116038 installed on A350-900 and A350-1000 aircraft series. This Variation provides also revised and new ATA 32 Landing Gear system ALS part 4 airworthiness limitations.
5.2	This Variation provides increased ATA 32 MLG Actuator Door P/N D24496000-1 ALS part 4 temporary limitation for A350-1000.

This includes also additional changes that were not published through Variations. For detailed traceability in the SOC, group of changes have been defined as follow:

GROUP OF CHANGES	REASON OF THE CHANGE
A	Introduction of a new life limited PNR 4785A0000-06 for Slat Power Control Unit (MOD 116484) and life limit extension of the Flap Active Differential Gearbox (LH/RH) PNR 4787A0000-03 when installed on A350-1000.
B	Temporary limitation extension of the MLG Door Actuator (LH/RH) PNR D24839000-3 when installed on A350-900, and limitation removal of MLG Door Actuator (LH/RH) PNR D24496000-1 when installed on A350-1000.
C	Note added regarding new SEMR task 311900-00001-01E clock starting point.

COMPLIANCE TIME

Airbus anticipates that a dedicated Airworthiness Directive (AD) will be released to mandate the update of the Operators approved Maintenance Program (OMP) according to Airbus A350 ALS Part 4 Revision 06. The compliance chapter of this future AD will give an implementation period for introduction of the new or revised instructions and airworthiness limitations introduced by this Revision in the OMP. Airbus recommends Operators to consider the implementation of these changes in the OMP at the next scheduled opportunity in order to anticipate future AD requirements.

Maintenance tasks and/or replacement of items in SECTION 3 and SECTION 4 will also be mandated by the future AD and are to be accomplished prior to the new/revised thresholds and/or intervals and/or limitations provided in this Revision, except for the items listed in the below table. For these items listed in the table below, a compliance time is provided for aircraft that have already exceeded or are close to exceeding the new or revised thresholds and/or intervals and/or limitations. In such a case, maintenance tasks and/or replacement of items in SECTION 3 and SECTION 4 are to be accomplished prior to the new/revised thresholds and/or intervals and/or limitations provided in this Revision or by the compliance time provided for each item, whichever occurs later. When applicable, the compliance time deadlines are indicated in the table below as advanced information for Operators in order to anticipate future AD requirements.

SECTION	REV CODE	ITEMS	VARIATION NUMBER (when applicable)	COMPLIANCE TIME	COMPLIANCE TIME APPLICABILITY
4-2	N	783500-R1001-01E	N/A	Within 500 FC after last greasing in accordance with instructions of the Goodrich VSB RA35078-048 or the AOT A78P001-18, as applicable	P/Ns 351D9908-689, 351D9908-691 or 351D9908-693 having been subject to last greasing [according to VSB RA35078-048 or AOT A78P001-18] before 24/SEP/2019

SECTION 1. INTRODUCTION

1 GENERAL

The ALS Part 4 provides System Equipment Maintenance Requirements (SEMR) which refer to preventative maintenance requirements (including replacement) found necessary to comply with safety objectives (associated to hazardous or catastrophic failure conditions) by stabilization of equipment failure rate. Those requirements shall be complied with, as per EASA Part M.A.302 - Aircraft Maintenance Program.

2 APPLICABILITY

The A350 ALS Part 4 applies to the following aircraft series and models:

AIRCRAFT SERIES	AIRCRAFT MODELS
A350-900	A350-941
A350-1000	A350-1041

3 MAINTENANCE PROGRAM PUBLICATION

The published maintenance program content is provided for aircraft operating up to the publication trigger quoted in the table below. Operation beyond these values requires an update of the ALS Part 4 data that are approved by the EASA. Should any operator envisage future operations beyond the quoted values, they must first contact Airbus for advice.

AIRCRAFT SERIES	PUBLICATION TRIGGER (whichever occurs first)	
	FLIGHT HOURS (FH)	FLIGHT CYCLES (FC)
A350-900 PRE MOD 113420	120 000	28 800
A350-900 POST MOD 113420	120 000	35 000
A350-1000	120 000	28 800

4 DEFINITION OF ALS PART 4 CONTENT

4.1 SYSTEMS LIFE-LIMITED COMPONENTS

Components/items listed under SECTION 3 are those affected by a replacement requirement associated to a life limitation and whose failure could contribute to an unsafe condition of the aircraft.

For a given PNR, when more than one set of limitations is published for the same application, the selection depends on the aircraft utilization. No combination of limitations from different sets is permitted.

Life limitations quoted in SECTION 3 are applicable to the undamaged detail components/items as listed, not to the assembly or the aircraft on which they are installed.

4.1.1 LIFE LIMITS

ALS Part 4 contains, in SECTION 3, components/items having a life limit due to failure during tests and whose failure could result in a catastrophic or hazardous failure condition. Their Part Numbers (PNR) are labelled “LL” in the table.

4.1.2 CURRENT DEMONSTRATED LIVES

ALS Part 4 contains, in SECTION 3, components/items having a demonstrated life limitation, which is temporary waiting for completion of the tests. Their PNRs are labelled “DL” in the table.

4.2 SYSTEMS INSTALLATION MAINTENANCE REQUIREMENTS

The maintenance tasks given in SECTION 4 include airworthiness limitations set to prevent the aircraft systems failures, which could contribute to an unsafe condition of the aircraft.

Note: Credit may be taken for accomplishment of the Maintenance Review Board Report (MRBR) Systems and Power plant section maintenance tasks, providing that they are performed with the same inspection level, at least as frequently as the inspection threshold and interval quoted in this document.

SECTION 4, paragraph 1 and paragraph 2 provide maintenance requirements and airworthiness limitations at component level and aircraft (system) level respectively.

4.2.1 CONTROLLED AT COMPONENT/SUB-ASSEMBLY LEVEL

SECTION 4, paragraph 1 identifies maintenance tasks controlled at component/item level. The recurrent maintenance requirements are applicable no later than the component/item, not the aircraft, reaching the airworthiness limitation.

When components/items given in SECTION 4, paragraph 1 reach the stated airworthiness limitations, the given maintenance task must be carried out. Any component/item removed from the aircraft for any reason (such as failure of functional check, degradation of condition, etc.) shall be replaced by a serviceable component/item, which has not reached the stated airworthiness limitations.

4.2.2 CONTROLLED AT AIRCRAFT SYSTEM LEVEL

SECTION 4, paragraph 2 identifies maintenance tasks controlled at aircraft level. The recurrent maintenance requirements are applicable no later than the aircraft, not the component/item, reaching the airworthiness limitation.

The maintenance tasks listed in SECTION 4, paragraph 2 must be carried out when the aircraft reaches the stated airworthiness limitation. Should a failure to reach the task requirements be detected, the appropriate trouble-shooting must be carried out and the relevant suspected components/items replaced in accordance with the Aircraft Maintenance Data (AMD) procedures. Following any replacements, the listed maintenance tasks must be repeated until a successful maintenance task recording can be entered.

5 BASIC RULES

5.1 CLOCK STARTING POINT FOR SEMR

This paragraph provides general rules related to the starting point for calculation of due dates or times for limitations and maintenance requirements identified in this document according to the different usage parameters.

5.1.1 AT AIRCRAFT LEVEL

For maintenance tasks in SECTION 4 paragraph 2:

- The threshold is applied from the initial Entry-Into-Service of the aircraft (unless otherwise stated).
- The next interval is calculated from the original due date of the last accomplishment of the task, excluding any exceptional short-term extensions from calculation.
  When alternative inspection methods are provided, the next interval applicable is the one associated with the inspection method used at last inspection.

For maintenance tasks in SECTION 4 paragraph 2 whose interval is changed, the next accomplishment must be determined from previous accomplishment date unless otherwise stated.

The time to start the clock for maintenance tasks with applicability determined by post-delivery modification is the date of MOD embodiment.

5.1.2 AT COMPONENT/ITEM LEVEL

For the transferable systems components/items, the starting point or initial Entry-Into-Service is defined as the date at which the component/item accomplishes the first flight for which it will undertake its intended function (unless otherwise stated).

For the components/items in SECTION 3:

- The life limitation indicated against PNR originally fitted is counted from the first flight of the component/item (unless otherwise stated).
- The life limitation indicated against PNR evolutions is also to be counted from the first flight of the component/item (unless otherwise stated).

For maintenance tasks in SECTION 4 paragraph 1:

- The threshold is applied from the initial Entry-Into-Service of the component/item (unless otherwise stated).
- The next interval is calculated from the original due date of the last accomplishment of the task limitation, excluding any exceptional short-term extensions from calculation.

When alternative inspection methods are provided, the next interval applicable is the one associated with the inspection method used at last inspection.

For maintenance tasks in SECTION 4 paragraph 1 whose interval is changed, the next accomplishment must be determined from previous accomplishment date unless otherwise stated.

The time to start the clock for maintenance tasks with applicability determined by post-delivery modification is the date of MOD embodiment.

5.2 TRACEABILITY

Components/items listed under SECTION 3 and SECTION 4 paragraph 1 have to be considered as “life-limited” components and therefore it is necessary to assure traceability and monitoring of these parts as per EASA Part M.A.305 - Aircraft continuing airworthiness record system.

In the context of the ALS Part 4, traceability means records that clearly demonstrate the history of components/items back to initial Entry-Into-Service of the part, so that life limitations are accurately applied. Traceability records may comprise, but are not limited to, the following:

- Application history (aircraft type, model, weight variant, MSN i.e. Manufacturer Serial Number, etc.),
- Maintenance actions carried out (Airworthiness Directives, modifications, repairs, inspections, etc.),
- Life accumulation (accounting for any individual aircraft to which a component/item may have been fitted).

Where the complete life history of a component/item is not known, Operators are requested to refer to the applicable In-Service Information ISI 00.05.00005 for guidance. It provides the means to manage such components/items. It has been issued in agreement with the European Aviation Safety Agency (EASA).

Note: Traceability and monitoring of component/item is not required for consumable component for which replacement is controlled at assembly/aircraft level.

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5.4 TRANSFER OF FATIGUE RELATED COMPONENTS/ITEMS BETWEEN AIRCRAFT APPLICATIONS/AIRCRAFT CONFIGURATION CHANGE

The airworthiness limitation(s) for a fatigue-related (i.e. ATA 27 and 32) component/item fitted to an aircraft may be different when:

- The component/item is transferred to another application, aircraft type, aircraft model, weight variant, etc.
- The aircraft configuration is changed as a result of MOD/SB embodiment (weight variant, landing gear standard, etc.).

In these cases, the component/item's remaining life must be calculated using the following formula:

$$Tr_i = \left[1 - \sum\left(\frac{Ca_j}{Cp_j}\right)\right] \times Cp_i$$

with:

Tri = component/item's remaining life for operation on current application i.

Caj = component/item's accumulated life on previous application j.

Cpj = component/item's airworthiness limitation in previous application j.

Cpi = component/item's airworthiness limitation in current application i.

When a component/item has been installed on an application where the ALS Part 4 does not impose an airworthiness limitation, the values in SECTION 1, paragraph 3 MAINTENANCE PROGRAM PUBLICATION shall be used.

Note 1: When using the above formula, Tri, Caj, Cpj and Cpi are expressed in the same usage parameter (e.g. FH or FC or LDG): Usage parameters cannot be mixed in the same calculation.

Note 2: The remaining life calculation must be reassessed every time the component/item's airworthiness limitation(s) change(s) for current and/or previous aircraft application(s) to which the component/item is/was fitted.

5.5 DISPOSAL/QUARANTINE ACTION

When the components/items reach the life limitations, disposal/quarantine action shall be taken, as per EASA Part M.A.504 - Control of unserviceable components, which asks for a status of life limited components and a life limited components log card. Disposal/quarantine action depends on the following categories:

For “life-limited” components/items listed in the SECTION 3, and labelled “LL”, they shall be mutilated beyond repair limits to prevent rework to appear to be airworthy.

Note 1: The ultimate solution is the mutilation beyond repair limits to prevent rework to appear to be airworthy, as per EASA Part M, AMC M.A.504 – Control of unserviceable components.

Note 2: Some means may exist to extend their life potential provided they are applied prior to reaching the life-limit (e.g. Service Bulletin: POST SB PNR).

For components/items whose fatigue lives are currently demonstrated, listed in the SECTION 3 and labelled “DL”: Appropriate means shall be implemented to deter their installation on aircraft pending possible extension of their life limitations. Examples of means are :

- Record keeping system,
- Non-permanent markings,
- Segregation (components stored separately from those currently eligible for installation).

Note: When consumable components are removed, they must be mutilated beyond repair limits to prevent rework to appear to be airworthy.

5.6 EXCEPTIONAL SHORT-TERM EXTENSIONS FOR SEMR ITEMS LISTED IN SECTION 4

Since SECTION 4 System Installation Maintenance Requirements intervals are based on statistical averages and reliability rates, an exceptional short-term extension for a specific SECTION 4 interval may be made on one aircraft for a limited period of time without compromising the safety objectives declared at Type Certification.

Repeated use of such extensions, either on the same aircraft or on similar aircraft in the Operator's fleet, should not be used as a substitute for good management practices. Short-term extensions must not be used for fleet SEMR escalation.

Unless noted adjacent to the airworthiness limitation, for all airworthiness limitations identified in the SECTION 4, it has been accepted by the Primary Certification Authority (EASA) that short-term extensions up to the following maximum values may be granted without consultation with that office.

(1) Controlled by Flight Hours (FH)

Extensions up to 10% or 500 FH (whichever is the lesser) may exceptionally be granted on SEMR airworthiness limitations quoted in terms of Flight Hours.

(2) Controlled by Flight Cycles or Landings (FC or LDG)

Extensions up to 5% or 250 FC/LDG (whichever is the lesser) may exceptionally be granted on SEMR airworthiness limitations quoted in terms of Flight Cycles or Landings.

(3) Controlled by Calendar Time

Where the repeat interval is 12 months or less, extensions up to 10% or 1 month (whichever is the lesser) may exceptionally be granted on SEMR airworthiness limitations quoted in terms of Months.

Where the repeat interval is greater than 12 months, extensions up to 2 months may exceptionally be granted.

This paragraph in the ALS Part 4 is written to confirm to the Authority of the State of aircraft registry that exceptional short-term extensions are permissible. Approval of such extensions rests with the Authority of the State of aircraft registry in the same way as it does for any other scheduled maintenance task interval extension.

Note: No short-term extensions are permissible for maintenance tasks previously required by individual ADs. These items will be highlighted by a note in the task description column.

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7 PRODUCTION CONCESSIONS, REPAIRS, ALS VARIATIONS, AIRWORTHINESS DIRECTIVES AND ALTERNATIVE METHODS OF COMPLIANCE

Limitations of the ALS Part 4 may be superseded by instructions given in either a production concession, a repair solution, an ALS Variation, an Alternative Method of Compliance (AMOC), an Airworthiness Directive (AD) or exemptions provided by National Aviation Authorities (e.g. exemption supported by ASAC – Airbus Statement of Airworthiness Compliance).

It is Operator's responsibility to refer to the applicable limitations.

When a limitation affected by a production concession/repair solution/AD/AMOC is amended within the Revision of the ALS Part 4 subsequent to the issuance date of the production concession/repair solution/AD/AMOC, Operators are requested to contact Airbus for guidance to establish impact on the production concession/repair solution/AD/AMOC.

8 MODIFICATIONS/REPAIRS NOT DEVELOPED BY AIRBUS DOA Certificate EASA.21J.031

If an aircraft/component has a modification or repair embodied, that has not been developed under the authority of Airbus Design Organization Approval (DOA) No. EASA.21J.031, and affects the content of the ALS, the Design Approval Holder (e.g. Supplementary Type Certificate (STC) holder) is responsible to provide any necessary adaptations of the ALS Part 4 airworthiness limitations.

SECTION 2. EXPLANATION OF TABLE FORMAT

The Systems Life-Limited Components are presented in SECTION 3 of ALS Part 4 and Systems Installation Maintenance Requirements are presented in SECTION 4 of ALS Part 4. Detailed information is given below to explain tables provided on subsequent pages.

1 SYSTEMS LIFE-LIMITED COMPONENTS (SECTION 3)

Explanation notes are located under the table.		**LL/DL**	**LIMITATIONS (Whichever occurs first)**			**LIMITATIONS APPLICABILITY**	
NOMENCLATURE	**PART NUMBER**		**FH**	**FC**	**Cal.**	**A350-941**	**A350-1041**
ATA XX-XX-XX ATA NAME							
(1) Note 1 (2) Note 2 …/…							

NOTES

Explanation notes are located under the table. When several notes are provided in the same cell the logical “AND” applies between the different configurations/conditions.

REVISION CODE

This column provides nature of change compared to previous Revision. This information is provided at the level of the part number.

(D): Deleted (part number no more life limited)
(R): Revised (at least one change in one limitation of considered part number)
(N): New (new life limited part number introduced)

(1) NOMENCLATURE

This column provides the nomenclature of the part number given on the right-hand side column.

(2) PART NUMBER

This column provides the part number impacted by the life limits or current demonstrated lives.

SECTION 3 provides the airworthiness limitations for systems components/items that have been certified on the aircraft series/models stated in the SECTION 1 paragraph 2 APPLICABILITY. Refer to Illustrated Part Data (IPD) for PNR identification.

PNR provided by SECTION 3 for ATA 32 items relate to detail parts, which may not all be listed in Illustrated Parts Data (IPD) issued by Airbus, are listed in the relevant Component Maintenance Manual (CMM) issued by vendors. This is the case, for example, when the procurable replacement part is delivered as an assembly.

To help operators complying with the ALS Part 4, Airbus has compiled in a supporting document named “Information File” the Next Higher Assembly and procurable PNR associated to each components listed in the ALS Part 4. The Information File can be found at the same location than the ALS Part 4 itself.

(3) LL/DL

Components/items having a life limit (LL) due to failure during fatigue tests will be labelled “LL”.

Components/items having a current demonstrated life (DL) without failure will be labelled “DL”.

(4) LIMITATIONS

Life limitations are provided in usage parameters, e.g.:

- FH: Flight Hours,
- FC: Flight Cycles,
- Cal.: Calendar time in year, months, etc.

(5) LIMITATIONS APPLICABILITY

Life limitation applicability is allocated to aircraft affected, according to:

- AIRCRAFT TYPE, SERIES AND MODELS

Table headers (second line) indicate aircraft models. When 'X' is entered in the model number, it stands for any number within the limits of the list of models given in SECTION 1 paragraph 2 APPLICABILITY, e.g.:

X	stands for:	All A350 models defined by the applicability of the column.

- AIRCRAFT MANUFACTURER SERIAL NUMBER

XXXXX-YYYYY	stands for:	From aircraft MSN XXXXX to aircraft MSN YYYYY (for all aircraft defined by the applicability of the column)
XXXYZ, XXXXZ	stands for:	For aircraft MSN XXXYZ and aircraft MSN XXXXZ
XXZXX	stands for:	For aircraft MSN XXZXX only
Excl. -XXXXX	stands for:	For all aircraft (defined by the applicability of the column), excluding MSN XXXXX

- AIRCRAFT CONFIGURATION

PRE NNNNN	stands for:	All A350 models defined by the applicability of the column, on which modification NNNNN has not been embodied
POST NNNNN	stands for:	All A350 models defined by the applicability of the column, on which modification NNNNN has been embodied

2 SYSTEMS INSTALLATION MAINTENANCE REQUIREMENTS (SECTION 4)

ALS PART 4 MAINTENANCE TASKS			LIMITATIONS		REFERENCE	LIMITATIONS APPLICABILITY	
TASK NUMBER	ZONE	DESCRIPTION	THRESHOLD	INTERVAL		PNR	AIRCRAFT

(1) TASK NUMBER

The task numbering system follows a similar format to the Maintenance Planning Document (MPD) system and is described as follows:

Each task is identified by a specific task number. When a task applies to two specific main zones located symmetrically to either side of the aircraft centerline, the task is assigned a single task number, but both LH and RH zones are indicated in Zone column.

The task number comprises 13 digits organized as follows:

XXXXXX - E F YYY - ZZ E

E stands for SEMR (i.e. task related to preventive maintenance requirement or Enhanced maintenance requirement).

ZZ is for the technical solution applicable to a same task requirement.

YYY is sequential number.

XXXXXX - E F YYY - ZZ E

F is engine type information when more than one engine from the same manufacturer is applicable to the program. “0” is default value. The following numbers have to be used to determine the engine type:

- 1 is used for Trent XWB.

E is the Engine/APU manufacturer identification. “0” is default value. The following letters have to be used to determine the engine manufacturer:

- R is used for Rolls Royce Engines.
- H is used for Honeywell APU.

XXXXXX is S1000D standard task reference.

(2) DESCRIPTION

This column provides the following information:

- Task Description, which contains basic description of the maintenance task to be performed.
- Note, where given, it states further requirements and/or provides useful information.

(3) THRESHOLD/INTERVAL

These columns are used to record the selected threshold and interval for the task. The threshold and interval may be expressed in terms of usage parameters or notes.

Usage parameters are defined in APPENDIX B.

(4) REFERENCE

This column provides reference to Instructions for Continued Airworthiness where maintenance practices/procedures necessary for the task accomplishment are provided, e.g. the AMD.

Where reference is made to an Airbus SB, it must be assumed that the latest approved revision of the SB is applicable, but any previous revision is acceptable.

Where a particular revision is stated, the revision or any later approved revision must be used.

(5) LIMITATIONS APPLICABILITY

These columns give the combination of component(s)/item(s) PNR and aircraft that requires the accomplishment of the task.

- PNR

SECTION 4 tables provide the airworthiness limitations for systems components/items that have been certified on the aircraft series/models stated in the SECTION 1 paragraph 2 APPLICABILITY. Refer to Illustrated Part Data (IPD) for PNR identification.

PNR provided by SECTION 4 for ATA 32 items relate to detail parts, which may not all be listed in Illustrated Parts Data (IPD) issued by Airbus are listed in the relevant Component Maintenance Manual (CMM) issued by vendors. This is the case, for example, when the procurable replacement part is delivered as an assembly.

- Aircraft

APPLICABILITY	TASK APPLICABLE TO
ALL	All A350 aircraft.
A350-XXX	A350-XXX aircraft series
A350 PRE XXXXX	All A350 on which modification XXXXX has not been embodied
A350 POST YYYYY	All A350 on which modification YYYYY has been embodied.

APPLICABILITY	TASK APPLICABLE TO
A350 POST XXXXX A350 POST YYYYY	All A350 on which modification XXXXX AND modification YYYYY have been embodied.
A350 POST XXXXX OR A350 PRE YYYYY	All A350 on which modification XXXXX has been embodied OR all A350 on which modification YYYYY has not been embodied.
A350 POST XXXXX POST SB xx-yyyy	All A350 on which modification XXXXX has been embodied. xx-yyyy is the SB reference associated to the modification.
A350 POST SB xx-yyyy	All A350 on which SB A350-xx-yyyy has been embodied (applicable only to retrofit solution).
RR	All A350 on which Rolls Royce engines are installed

SECTION 3. SYSTEMS LIFE-LIMITED COMPONENTS

Systems life-limited components can be found in the attached excel file “A350 ALS Part 4 Revision 06.xlsx”.

SECTION 4. SYSTEMS INSTALLATION MAINTENANCE REQUIREMENTS

1 CONTROLLED AT COMPONENT/SUB-ASSEMBLY LEVEL

Systems installation maintenance requirements controlled at component/sub-assembly level can be found in the attached excel file “A350 ALS Part 4 Revision 06.xlsx”.

2 CONTROLLED AT AIRCRAFT SYSTEM LEVEL

Systems installation maintenance requirements controlled at aircraft system level can be found in the attached excel file “A350 ALS Part 4 Revision 06.xlsx”.

APPENDIX A. ABBREVIATIONS

ABBREVIATION	MEANING
AD	Airworthiness Directive
ALS	Airworthiness Limitations Section
AMC	Acceptable Means of Compliance
AMD	Aircraft Maintenance Data
AMM	Aircraft Maintenance Manual
AMOC	Alternative Method of Compliance
APP	Alternative Power Pack
APU	Auxiliary Power Unit
ASAC	Airbus Statement of Airworthiness Compliance
ATA	Air Transport Association
Cal.	Calendar
CMM	Component Maintenance Manual
CV	Check Valve
D	Deleted
DL	Demonstrated Lives
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
ECAM	Electronic Centralized Aircraft Monitoring
ECP	Engine Control Panel
EDP	Engine Driven Pump
FC	Flight Cycle
FH	Flight Hour
FIN	Functional Item Number
GRA	Geared Rotary Actuators
ICP	Integrated Control Panel
IPC	Illustrate Part Catalogue
IPD	Illustrated Part Data
ISI	In Service Information
LDG	Landings

ABBREVIATION	MEANING
LH	Left Hand
LL	Life Limit
MLG	Main Landing Gear
MOD	Modification
MPD	Maintenance Planning Document
MRBR	Maintenance Review Board Report
MSN	Manufacturer Serial Number
N	New
NLG	Nose Landing Gear
OMP	Operators approved Maintenance Program
PNR	Part Number
PBSELV	Park Brake Selector Valve
R	Revised
RH	Right Hand
RR	Rolls Royce
SB	Service Bulletin
SEMR	System Equipment Maintenance Requirements
SOC	Summary of Changes
STC	Supplemental Type Certificate
TOC	Table Of Contents
Ye	Years
XWB	Extra Wide Body

APPENDIX B. TERMS AND DEFINITIONS

TERM	DEFINITION
CALENDAR TIME (CAL.)	Airworthiness limitations in Years (Ye), in Months (Mo), etc. must be counted from the date of initial Entry-Into-Service of the component/part, unless otherwise stated. Storage, maintenance, etc. do not freeze calendar time accumulation but during those cases the life limit is not considered as exceeded since the aircraft is not in airworthy conditions. Nevertheless the component/part must be replaced before the release to service of the aircraft. Month(s): equivalent of 1 calendar month (can be calculated as 1/12 calendar year). Year(s): equivalent of 12 calendar month (can be calculated as 365,25 days).
COMPLIANCE TIME	Period of time given to Operators to accomplish maintenance tasks and/or replace items (at component or aircraft level) having exceeded or close to exceed the new/reduced airworthiness limitations provided in the Revision/Variation.
ENTRY-INTO-SERVICE	The initial Entry-Into-Service is defined for the aircraft (systems installations) as: − The date of Transfer of Title to the first Operator for airworthiness limitations in Calendar times, unless otherwise stated in any delivery documentation to the first Operator. − The date of aircraft first flight for airworthiness limitations in flight hours and/or flight cycles and/or landings. The initial entry into service for the transferable systems components/items is defined as the date at which the component/item accomplishes the first flight for which it will undertake its intended function. *Note: Unless otherwise stated, this means for transferable components/items delivered on new aircraft (i.e. from Airbus Final Assembly Line) that the life accumulated between aircraft first flight and the aircraft delivery date/transfer of title date (e.g. as a result of test flights) must be taken into account.*
EXCEPTIONAL SHORT-TERM EXTENSION	An extension in a SEMR airworthiness limitation that may be needed to cover an uncontrollable or exceptional unexpected situation.
FLIGHT CYCLE (FC)	A complete take-off and landing sequence.
FLIGHT HOUR (FH)	The accumulated time intervals between ‘wheels-off’ and ‘wheels-on’.
FUNCTIONAL CHECK	A quantitative check to determine if a component/item performs one or more functions of within specified limits.
IMPLEMENTATION PERIOD	The period of time allocated to Operators to update their approved Maintenance Program.
INTERVAL	The maximum period expressed in usage parameters between the completion of a task and its next due accomplishment.

TERM	DEFINITION
THRESHOLD	The initial accomplishment of a specific maintenance task from the initial entry into service. It may be expressed in usage parameters like FH and/or FC and/or LDG and/or Calendar time.
VISUAL CHECK	Observation to determine that a component/item is fulfilling its intended purpose. It is a failure finding task and does not require quantitative tolerances.

APPENDIX C. LIST OF DELETED TASKS

TASK REFERENCE	SUMMARY OF CHANGES
N/A	N/A

APPENDIX D. HISTORY FILE

RECORD OF REVISIONS

REVISION NUMBER	REASONS FOR REVISION	REVISION DATE
00	First Issue.	SEP 30/14
01	The Revision 01 was issued mainly to provide revised airworthiness limitations for some ATA 32 items. It also introduced some administrative/editorial changes.	DEC 19/14
02	The Revision 02 was issued mainly to provide the impact on the mandatory instructions and airworthiness limitations by embodiment of MOD 108342, MOD 108712 (SB A350-29-P006), or MOD 109792 (SB A350-32-P017) and the revised life limitations of some ATA 32 items. It also introduces the editorial changes.	JUN 24/16
03	The ALS Part 4 Revision 03 contains all approved changes since the previous Revision. This includes mainly : • new & revised SEMRs (life limitations or maintenance requirements) related to A350-900 (published in Variations 2.1 to 2.5, or introduced directly in this Revision), including mainly : o new ATAs 27, 28, 32 and 78 PNR life limitations, o revised ATA 32 PNR life limitations (resulting from last testing results), o revised SEMR task 291000-00001-02E resulting from configuration changes through modifications, o cascade of (NLG & MLG) Alternate Power Pack PNR life limitation to Motor Assembly and Controller PNR sub-assembly, • As well as the new A350-1000 SEMRs.	DEC 15/17
04	The ALS Part 4 Revision 04 is mainly issued to extend current demonstrated life (DL) for NLG Retraction Actuator Pin (main fitting side) PNR 5035-0026 and introduce a new PNR (4810A0000-09) for NLG Retraction Actuator.	SEP 14/18

REVISION NUMBER	REASONS FOR REVISION	REVISION DATE
05 issue 01	The ALS Part 4 Revision 05 is mainly issued to include : • Changes already published through Variations : ○ Variation 4.1 : Provides impact related to MOD 112448 [introduces new Flap System Torque Limiter (STL) P/N C64979-004] ○ Variation 4.2 : Provides impact related to MOD 112312 [defines and installs CPIOM Core SW Std S3.0.3] and MOD 112313 [defines and installs CRDC SW S3.1.3 and tools V3.1.1.3] ○ Variation 4.3 : Provides new limitations for ATA27 Inboard Aileron Servocontrol Part Numbers on A350-941 aircraft ○ Variation 4.99 Issue 02 : Introduces MOD 113420 [defines the Extended Service Goal (ESG) for A350-900 aircraft series] and extends demonstrated lives (DL) related to ATA 32-21-00 NOSE LANDING GEAR (NLG). This Variation has been distributed to JAL only • Changes introduced directly in the Revision : ○ Applicability extension of the Variable Frequency Generator (1 / 2) (LH / RH) P/N 1726600 to the whole A350 family ○ Applicability extension of NLG Actuator Door (L/R) P/N D24840000-4 following extension of MOD 112226 to the A350-900 aircraft series ○ Introduction of Engine Driven Pump (Green / Yellow) (LH / RH) P/N 53098-06 by 78 750 FH for all A350 ○ Introduction of SEMR task 783500-R1001-01E and removal of life limited Part Numbers 351D9908-313 and 351D9908-315 ○ Introduction of life limitations related to ATA 36-12-00 APU BLEED AIR SUPPLY AND CROSSBLEED SYSTEMS. ○ Update life limits of following items : ▪ Flap Active Differential Gearbox (LH/RH) P/N 4787A0000-03 from 10 000 FC to 20 000 FC, when installed on A350-900 ▪ Flap Torque Shaft Assembly (F10) P/Ns CA96787-001 and CA96787-005 from 10 000 FC to 17 700 FC, when installed on A350-900 ○ Remove temporary limitation of Flap System Torque Limiter P/N C64979-004.	MAY 29/20
05 issue 02	The A350 ALS Part 4 Revision 05 Issue 02 has been released in order to introduce life limitation for ATA 24 Variable Frequency Generator (VFG) P/N 1712967G.	JUN 25/20

REVISION NUMBER	REASONS FOR REVISION	REVISION DATE
06	The ALS Part 4 Revision 06 is issued to include: • Changes already published through Variations: ○ Variation 5.1: Provides impact related to MOD 116038 and introduction or revision of ATA 32 Landing Gears System ALS part 4 limitations. ○ Variation 5.2: Provides increased ATA 32 MLG actuator door PNR D24496000-1 ALS part 4 temporary limitation for A350-1000. • Changes introduced directly in the Revision : ○ Introduction of a new life limited PNR 4785A0000-06 for Slat Power Control Unit (MOD 116484) and life limit extension of the Flap Active Differential Gearbox (LH/RH) PNR 4787A0000-03, when installed on A350-1000. ○ Temporary limitation extension of the MLG Door Actuator (LH/RH) PNR D24839000-3 when installed on A350-900, and limitation removal of MLG Door Actuator (LH/RH) PNR D24496000-1 when installed on A350-1000. ○ Note added regarding new SEMR task 311900-00001-01E clock starting point.	JUN 30/21

APPENDIX E. SUMMARY OF CHANGES

GENERAL

Summary Of Changes (SOC) from previous ALS revisions are not published within this ALS Part 4. SOC for previous revisions could be found within the related revision.

Except in SECTION 3 and SECTION 4, non-administrative changes are highlighted with a revision bar in the left hand margin in front of the line different from previous revision of the ALS Part 4.

In SECTION 3, SEMR changes are highlighted with the following movement codes printed in the left hand margin of the airworthiness limitation when different from previous revision of the ALS Part 4:

- <N> = New (new life limited part number introduced)
- <R> = Revised (at least one change in one limitation of considered part number)
- <D> = Deleted (part number no more life limited).

In this section, administrative changes are not highlighted but are identified in the SOC column.

In SECTION 4, SEMR changes are highlighted with the following movement codes printed in the left hand margin of the airworthiness limitation when different from previous revision of the ALS Part 4:

- <N> = maintenance requirement is new,
- <R> = maintenance requirement has been revised,
- <D> = maintenance requirement has been deleted.

In this section, administrative changes are not highlighted but are identified in the SOC column.

COVER PAGE

The cover page has been revised to amend the Revision number.

TABLE OF CONTENT

The table of content has been updated according to the changes performed throughout the document.

REVISION STATUS

The first frame has been updated in order to take into account subjects approved under DOA authority.

This section has been updated to provide the:

- Approval date and reference of the A350 ALS Part 4 Revision 06.
- Reference of the Variations compiled in this Revision.
- The revision status now displays additional changes that were not published through Variations. For detailed traceability in the SOC, group of changes have been defined in a new table.

COMPLIANCE TIME

This section has been updated to provide the list of items for which the instructions and airworthiness limitations have been revised and introduced in the A350 ALS Part 4 Revision 06 as well as their associated compliance time (when applicable). This information comes from the original Variations and/or additional approved changes which have been introduced in the current Revision.

SECTION 1 – INTRODUCTION

Page 11: Paragraph 5.2 “TRACEABILITY” has been updated to introduce an ISI reference related to the life history of a component.

SECTION 2 – EXPLANATION OF TABLE FORMAT

No change.

SECTION 3 – SYSTEMS LIFE-LIMITED COMPONENTS

Limitations table with its associated change description has been transferred in the attached excel file.

SECTION 4 – SYSTEMS INSTALLATION MAINTENANCE REQUIREMENTS

Limitations table with its associated change description has been transferred in the attached excel file.

APPENDIX A – ABBREVIATIONS

Following abbreviations have been added: ECAM, ECP, ICP, ISI.

APPENDIX B – TERMS AND DEFINITIONS

No change.

APPENDIX C – LIST OF DELETED TASKS

This section lists the deleted SEMR tasks from previous Revision.

APPENDIX D – HISTORY FILE

This section has been updated to add the reason for issuance of the A350 ALS Part 4 Revision 06.

APPENDIX E – SUMMARY OF CHANGES

This section provides the changes introduced in the A350 ALS Part 4 Revision 06.