

EASA	NOTIFICATION OF A PROPOSAL TO ISSUE A CERTIFICATION MEMORANDUM
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In accordance with the EASA Certification Memorandum procedural guideline, the Agency proposes to issue an EASA Certification Memorandum (CM) on the subject identified below.

All interested persons may send their comments, referencing the EASA Proposed CM Number above, to the e-mail address specified in the “Remarks” section, prior to the indicated closing date for consultation.

EASA Certification Memoranda clarify the Agency’s general course of action on specific certification items. They are intended to provide guidance on a particular subject and, as non-binding material, may provide complementary information and guidance for compliance demonstration with current standards. Certification Memoranda are provided for information purposes only and must not be misconstrued as formally adopted Acceptable Means of Compliance (AMC) or as Guidance Material (GM). Certification Memoranda are not intended to introduce new certification requirements or to modify existing certification requirements and do not constitute any legal obligation.

EASA Certification Memoranda are living documents into which either additional criteria or additional issues can be incorporated as soon as a need is identified by EASA.

Subject

Service Bulletins (SBs) related to Airworthiness Directives (ADs)

Log of Issues

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1. INTRODUCTION

1.1. PURPOSE AND SCOPE

The purpose of **this** Certification Memorandum is to promote Design Approval Holder (DAH) Best Practices for drafting Service Bulletins (SBs) related to Airworthiness Directives (ADs).

1.2. REFERENCES

It is intended that the following reference materials be used in conjunction with this Certification Memorandum:

Reference (Annex Part 21 to Commission Regulation (EC) No. 1702/2003)	Title	Code	Issue	Date
21A.3B(c)(2)	Airworthiness directives (Descriptive data and accomplishment instructions)	---	---	---
21A.61, 107, 120, 449	Instructions for continued airworthiness			
21A.609	Obligations of holders of ETSO authorisations			
21A.263 (c)(3)	Privileges (Design Organisation Approval Holder)			

1.3. ABBREVIATIONS

The following abbreviations are used in this Certification Memorandum:

Abbreviation	Meaning
AD	A irworthiness D irective
AMM	A ircraft M aintenance M anual
AMOC	A lternative M ethod o f C ompliance
ATA	A ir T ransportation A ssociation
CM	C ertification M emorandum
CMM	C omponent M aintenance M anual
DAH	D esign A pproval H older
EASA	E uropean A viation S afety A gency
ETSO	E uropean T echnical S tandard O der
FAA	F ederal A viation A dministration
FIM	F ault I solation M anual

ICA	I nstructions for C ontinued A irworthiness
NDT	N on- D estructive T est
OHM	O verhaul M anual
SB	S ervice B ulletin
SOPM	S tandard O verhaul P ractices M anual
SRM	S tructural R epair M anual
STC	S upplemental T ype C ertificate
SWPM	S tandard W iring P ractices M anual
WDM	W iring D iagram M anual

1.4. DEFINITIONS

The following definitions are used in this Certification Memorandum:

Definition	Meaning
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2. BACKGROUND

It is common practice amongst a large number of design organisations (holding a type certificate, supplemental type certificate or ETSO Approval) to request actions to improve the safety level of their product, part or appliance by means of Service Bulletins (SB), or any equivalent publications¹, explicitly classified as “mandatory”. In most cases, the word “mandatory” either appears in the title of the document (e.g. “*Mandatory Service Bulletin*”) or in the header or any other prominent part of the document.

This practice has repeatedly caused confusion and triggered questions to the Agency about the legal applicability and implications of such documents for the owners and/or operators of the aircraft to which the bulletin applies.

The purpose of this Certification Memorandum is to clarify the legal character of SBs and to provide guidance to design organisations on how to improve their SB drafting.

3. EASA CERTIFICATION POLICY

According to Article 20 (1) of Regulation (EC) No. 216/2008, the Agency shall carry out on behalf of the Member States the functions and tasks of the state of design, manufacture or registry when related to design approval. To that end, and in accordance with Article 20 (1)(j), the Agency shall “*ensure the continuing airworthiness functions associated with the products, parts and appliances which are under its oversight, including reacting without undue delay to a safety problem and issuing and disseminating the applicable mandatory information*”. This means that **only the Agency may issue** (or adopt, in cases where the product, part, appliance, or modification (e.g. STC) to which the AD applies is of non-European design) **mandatory information** (in the form of an Airworthiness Directive, AD) in order to react without undue delay to a given safety problem.

Service Bulletins (or equivalent documents) issued by design approval holders in accordance do not have a legally mandatory character equivalent to an AD, cannot have enforcement implications and, therefore, serve as information or instruction by the Design Organisation only. This also applies to cases where a Service Bulletin indicates that it has been published in anticipation of an Airworthiness Directive (AD), to be issued by the competent authority (Agency or other authority acting as State of Design) at a later stage.

Regardless of the nature of a Service Bulletin and its possible effects between the parties involved, it is not legally binding for the purposes of Articles 20 (1) (j) of Regulation (EC) No 216/2008 and 21A.3B of Annex Part 21 to Regulation (EC) No 1702/2003.

In this respect, any misleading wording in the title, the header or any other prominent part of the document should be avoided when issuing Service Bulletins.

Only Service Bulletins related to ADs should be labelled “mandatory” by the design approval holder.

In chapter 4 of this Certification Memorandum, EASA recommends Design Approval Holder Best Practices for Service Bulletins related to Airworthiness Directives. For consistency and harmonization reasons, the content of this chapter is similar to FAA Advisory Circular 20-176 (http://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2020-176.pdf).

¹These are called, for example, Service Letter, Service Advisory, etc.

4. EASA-RECOMMENDED DESIGN APPROVAL HOLDER BEST PRACTICES FOR SERVICE BULLETINS RELATED TO AIRWORTHINESS DIRECTIVES

4.1. USER-FRIENDLY SERVICE BULLETINS

4.1.1. General.

This chapter provides best practices and recommendations on how DAHs can improve the quality and usability of SBs associated with an AD action. It also provides guidance for streamlining the SB development and revision processes for such SBs.

4.1.2. SB Improvements.

a. A SB referenced in an AD as a source of information about the unsafe condition, should be written so owners/operators can understand and follow the accomplishment instructions. The following SB improvements will be discussed further in this chapter:

(1) Providing a standardized format and structure so the reader can easily locate important information on effectivity, compliance times, and accomplishment instructions. See paragraph 4.1.3. of this CM.

(2) Including a clear and concise description of the safety intent of the SB as well as a precise description of the new configuration that removes the unsafe condition. See paragraph 4.1.4. of this CM.

(3) Writing clear, concise, and unambiguous technical instructions that minimize the possibility of omission, error, or extensive judgment. See paragraphs 4.1.5. and 4.1.6. of this CM.

(4) Giving clear, detailed illustrations appropriate to the task, and that help the user understand how to sequence and accomplish the tasks and/or steps. See paragraphs 4.1.7. and 4.1.8. of this CM.

(5) Allowing use of industry standards or operator practices acceptable to the Agency. See paragraph 4.1.9. of this CM.

(6) Streamlining the SB development and revision processes. See paragraph 4.1.10. of this CM.

b. The concepts presented in this CM apply to development of new or revised SBs and are not intended to be applied retroactively, except when deemed necessary by the DAH and EASA.

4.1.3. Standardized Format and Content.

a. The format and content of a SB should follow industry specifications for technical documents. Refer to the following documents:

(1) Air Transportation Association (ATA) Spec 2200, *Information Standards for Aviation Maintenance*.

(2) S1000D, *International Specification for Technical Publications*.

b. The accomplishment instructions in a SB should address resolving the unsafe condition identified in the AD. Sometimes, however, procedures are already published in other DAH documents which accomplish this goal. As such, the following guidelines are provided to help determine what procedures should, or should not, be included in a SB:

(1) When appropriate, include the following types of procedures in the SB:

(a) Inspection or test procedures that do not exist in a published DAH document available to other parties.

(b) Critical requirements (e.g., torque values, gap measurements, electrical bonding, etc.) in procedures that exist in manuals that are not EASA approved. List in the SB the critical requirements that must be met to comply with a planned AD and refer to the procedure in the manual that is not EASA approved as an accepted procedure to achieve those requirements (see paragraph 4.1.9 of this CM).

(c) Revised procedures when the original procedure(s) are in error.

(2) Do **not** duplicate (e.g., copy) the following types of procedures in a SB. Instead of repeating the procedure, refer to the other document(s) for that task. Be careful, however, because any change to the procedures referenced in the other document(s) in a SB that will be required for compliance with an AD might require an AMOC approval.

(a) Procedures that exist in other documents accessible by other parties (e.g., DAH SBs/manuals, component SBs, and supplier SBs).

(b) Common industry practices such as, but not limited to, the Standard Overhaul Practices Manual (SOPM) and Standard Wiring Practices Manual (SWPM).

(c) Tests for all components or systems that may be disturbed during incorporation of a SB. A SB should specify only the testing necessary to ensure the new or modified system operates as intended after the modification is complete (i.e., unsafe condition is resolved). Any additional functional tests that may be necessary due to an interruption to other aeroplane systems can be addressed in a note in the SB (see appendix A, paragraph 5).

c. If a SB references other documents that will be required for compliance with an AD (reference paragraphs 4.1.9 and 4.1.10 of this CM), include the revision level and date of the other document(s). Use the following guidelines when referring to other documents in a SB:

(1) Specify the specific section(s) of the document that are applicable. Do not provide a blanket reference to the other document if only portions of the other document are applicable.

(2) Do not refer to documents that simply refer to other documents. Instead refer to the end document that provides the actual instruction.

(3) Do not refer to documents that do not provide sufficient information to perform the task (e.g., "Cad plate per SOPM AA-XX-YY" if document SOPM AA-XX-YY does not specify the type of cad plating for the specific part).

4.1.4. Safety Intent and Configuration Description.

a. When drafting a SB that might be made mandatory by an AD, the SB should contain paragraphs entitled "Safety Intent", or similar, and for ADs that will change the configuration of a part, "Configuration Description." Place the paragraphs next to one another upfront in the SB, for example after the "Reason" paragraph. These paragraphs are intended to

enhance and focus awareness of the safety issue during the development and approval of the SB by the DAH as well as during implementation and subsequent maintenance. If deemed necessary, the “Safety Intent” may be part of the “Reason” paragraph, provided that the conditions explained here below apply.

(1) The “Safety Intent” paragraph should explain what accomplishment of the SB is intended to do (i.e., prevent, resolve, or otherwise remove the unsafe condition). The description should be a succinct and clear statement of the specific technical objective of the instructions. For example, “The safety intent of this SB is to prevent electrical arcing between a wire bundle and control cables in the main wheel well, which, if not corrected, could cause a hydraulic or electrical fire.” The goal is to explain in technical terms what is the affected part and failure mode or malfunction, and how it will be prevented, resolved, or otherwise removed by accomplishing the SB. This differs from the “Reason” paragraph in most SBs which typically provide the history and reason for taking the SB action.

(2) If accomplishing the SB will change configuration, a “Configuration Description” paragraph should be included to provide a succinct, high-level description of the design change that will result from accomplishing the instructions. For example, “Incorporating this SB results in installing a new wire bundle (P/N 123456) between the J135 and J234 connectors, and installing several standoffs of increased length to hold the wire bundle clear of contact.” The “Configuration Description” should:

(a) Be limited to the features that will prevent development or recurrence of the unsafe condition, once the configuration has been implemented. The paragraph can provide the greatest value in SBs that specify ‘high risk’ modifications (e.g., instructions that are complex, workmanship intensive, or susceptible to reversal in operations).

(b) Assist in understanding the post-installation mandated configuration. The “Configuration Description” may guide, but cannot be used as the final determinant of compliance with an AD.

(c) For an AD that will require installation of a different part, the part number of the new part should differ from that of the original. If changing the part number (i.e., “rolling” the part number) is impractical, identify the “modification level” of the part. The configuration description for this case should control the part by the “modification level” in addition to the part number identification.

(d) Identify a specific part, sub-assembly, or assembly of a component affected by the safety intent. An affected component “part number” may contain, both “good” and “bad” parts, sub-assemblies, or assemblies. But because the part number of the component might not have been changed or “rolled” to differentiate the configurations, identification using the component part number alone is inadequate. Therefore, the configuration description for such a case should control the specific parts, sub-assemblies, or assemblies in addition to the part number identification of the affected component.

b. For SBs originally written for reliability or economic enhancements that subsequently are found to provide correction of a safety issue, those SB should be revised to include the “Safety Intent” and “Configuration Description” paragraphs per the guidance in this CM.

4.1.5. Unambiguous Language.

a. Avoid unclear and confusing terms when writing a SB. See Table 1 below for examples of ambiguous language used in SBs and how to rewrite them for clarity.

Table 1: Examples of Ambiguous and Unambiguous Language

Instead of...	Use...
The sensor may not operate properly in cold temperatures	The sensor may not operate properly in cold temperatures below 32 degrees Fahrenheit (0 degrees Celsius)
Apply sealant as necessary	Apply firewall sealant in gaps, holes, or voids in the engines' nacelle strut door assemblies of the engines
Make sure there is adequate clearance	Inspect for minimum one inch clearance between wires
Look for unsatisfactory elongation of holes	Inspect bolt holes in the horizontal stabilizer for elongation. See Table 1 for acceptable limits for bolt holes.
When in the area, inspect for...	Inspect the right main landing gear wheel well for arcing damage
Inspect for discrepancies	Inspect for frayed wires, incorrect clearance or evidence of chafing

b. To prevent the use of ambiguous language in SBs, each DAH should develop criteria and tolerances and consider implementing one or more of the following items:

(1) Training. Provide training to authors of SBs to stress the adverse impact of using ambiguous terms and the importance of providing clarity and accuracy.

(2) Tools. Use computing tools or checklists to prevent, or search for and eliminate ambiguous terms.

(3) Processes. Implement processes during the authoring, review, validation, and DAH internal approval of SBs that will prevent the use of ambiguous terms.

4.1.6. Notes.

a. Notes in SBs generally provide information related to the accomplishment of instruction steps. However, notes are informational only, and since they are generally unenforceable, they shouldn't contain any requirements. Authors, therefore, are strongly encouraged to review notes to ensure they don't contain any critical step(s) for accomplishing the corrective action(s).

b. Unless specified otherwise, notes apply to figures, illustrations, and drawings within the SB. Refer to appendix A for examples of notes that can be used in SBs.

c. When technically possible, write notes such that the SB user has an acceptable level of flexibility (e.g., specify alternative materials; allow acceptance to use other approved methods, techniques and practices, etc.) to accomplish the tasks. Refer to appendix B for examples.

d. If referring to other documents within a SB, ensure that the notes specified in the referenced document do not conflict with notes in the SB. If there is a conflict, add a note in the SB to specify which note takes precedence.

e. Notes should be placed at the beginning of the accomplishment instructions and may include items such as:

- (1) Referring to a list or document of acceptable alternative parts, materials, and processes,
- (2) Specifying or referring to other documents for standard tolerances and dimensions,
- (3) Providing warnings and cautions that apply to the entire set of accomplishment instructions,
- (4) Specifying standard practices that apply to the entire set of accomplishment instructions,
- (5) Providing definitions for inspections specified in the service information, and
- (6) Referring to DAH maintenance documentation.

4.1.7. Figures, Illustrations, and Drawings.

a. To avoid subjective misinterpretation, the text in the accomplishment instructions must be the authoritative information. Use figures, illustrations, and drawings to supplement the accomplishment instructions. If a discrepancy between the accomplishment instructions and a figure, illustration, or drawing exists, the discrepancy must be evaluated and corrected.

b. Dimensions should be added to clearly define locations, e.g., installation of parts.

c. Tolerances should be included for measured values (e.g., dimensions, torque values, temperature). This can be done in the figure, illustration, or drawing itself, or in general notes in the service bulletin (e.g. "All dimensions given have a tolerance of +/- 5mm unless otherwise stated.")

d. Phantom lines, shading/cross hatching, and enlarged views should be used to assist in distinguishing important information from "reference only" information. Refer to appendix C for examples.

4.1.8. Logic-based Diagrams.

A SB specifying numerous compliance times, configurations, conditions, and alternative corrective actions can be difficult to follow. For such cases, a logic-based diagram (e.g., flowchart) is a useful tool to assist owners/operators in choosing the best corrective path, such as repetitive inspections or a terminating modification, based upon the discovered condition and compliance times.

a. It is the responsibility of the DAH to determine if logic-based diagram(s) would help simplify a complex SB. Consideration should be given to requests from operators or the Agency as to whether a logic-based diagram would be helpful.

b. A logic-based diagram cannot be the primary source for tasks or compliance times in the SB. If used, logic-based diagrams should:

- (1) Use descriptive, concise, and consistent terminology, and
- (2) Contain a note in both the logic-based diagram and the accomplishment instructions paragraph of the SB to be clear that the logic-based diagram only supplements the information in the accomplishment instructions.

4.1.9. Mandatory versus Flexible Language.

The use of mandatory language in the accomplishment instructions of a SB depends on whether other procedures acceptable to the Agency are adequate to address the unsafe condition in an AD. If other procedures are acceptable to the Agency, non-mandatory language should be used in the SB.

a. When a procedure or document **MUST** be followed to accomplish a task in a SB, the appropriate terminology to use to cite the procedure/document is “in accordance with.” Use “in accordance with” for:

(1) A process or procedure that must be followed exactly to resolve the unsafe condition and comply with the AD. Also consider including the steps of the process or procedure in the SB and a note not to change the process or procedure without full consideration of the consequences. Examples of procedures that are frequently cited as *must* be followed include:

(a) Non-Destructive Test (NDT) procedures developed to address a specific condition that are self-contained in the SB and not duplicated in the NDT manual, or

(b) Weight and balance aeroplane weighing procedures.

(2) Documents approved by a regulatory authority that an operator must use to ensure the part is installed, changed, or tested per the specific instruction. Documents approved by a regulatory authority when specified in DAH SBs may include, but are not limited to:

(a) Structural Repair Manual (SRM),

(b) Other SBs (e.g., Component, Supplier, etc.), or

(c) Airworthiness Limitations Section of the Instructions for Continued Airworthiness (ICA).

b. When a procedure or document **MAY** be followed to accomplish an action (e.g., the DAH’s procedure or document may be used, but an operator’s procedure accepted by the competent authority could also be used), the appropriate terminology to use to cite the procedure or document is “refer to ... as an accepted procedure.” Use this flexible language when referring to procedures in documents acceptable to the Agency or the competent authority and when an operator may use the document or their own procedure that is acceptable to the competent authority. Documents or procedures acceptable to the Agency or the competent authority may include, but are not limited to:

(1) Aircraft Maintenance Manual (AMM) for access, removal, and testing;

(2) SWPM for standard industry wiring procedures such as, but not limited to, installing wiring, electrical bonding and grounding, cleaning electrical connectors, etc.;

(3) SOPM for standard industry procedures such as, but not limited to, general cleaning procedures, application of adhesives, lubricants, sealants, application of stencils, etc.);

(4) Overhaul Manual (OHM) and Component Maintenance Manual (CMM) for disassembly, assembly, and testing;

(5) Fault Isolation Manual (FIM);

(6) Wiring Diagram Manual (WDM); and

(7) Generic or common NDT manual procedures not developed for a specific SB application.

c. When using “in accordance with” or “refer to” language in a SB, the DAH should include a note explaining the meaning of that language. For example:

“Note: These work instructions refer to methods, techniques, and practices described in other *{specify DAH name}* documents. When the words “refer to” are used and the operator has other acceptable methods, techniques, and practices (including tools, equipment, and test equipment) those acceptable methods, techniques, practices (including tools, equipment, and test equipment) may be used to complete the work. When the words “in accordance with” are included in the instruction, the methods, techniques, and practices specified (including tools, equipment, and test equipment) in the *{specify DAH name}* document must be used.”

4.1.10. Streamlining Development and Revision of SBs.

a. Each DAH should have systems in place to continuously monitor and implement process improvements in both the development and revision of SBs. The system should help improve processes involving the quality of SBs as well as reducing flow time to produce those SBs.

b. It is important to remember that for any change to an SB, such as a partial or temporary revision, after the SB is referenced in an AD, the Agency has to be informed accordingly.

c. Below are examples of process improvements implemented by various DAH(s) to reduce flow time and improve the quality of SBs. Each DAH should review the list of items and evaluate the feasibility of implementing items from the list, or identify alternatives or equivalents that would improve SB processes.

(1) Use of Checklists and Tip Sheets – Implemented to assist authors in making sure requirements are met before documents are sent for approval.

(2) Use of Templates – Implemented to standardize the location and content of text in SBs, which reduces variation.

(3) Dispute Resolution Process – An informal process where a DAH communicates early and often in the SB process with its regulatory counterpart(s) for early resolution of issues.

(4) Validation Process – A formal process used to validate that the procedures in SBs are accurate, and that hardware kits/parts are complete and can be accomplished per the accomplishment instructions.

(5) Partial Revision Process – A process in which only changed information in a SB is sent to affected customers.

(6) Temporary Revision Process – A process in which only changed information in a document is sent to affected customers. The information is later included in the next scheduled revision cycle for the document.

(7) Information Exchange Process – A process in which a DAH shares information used to develop service information. For example, posting the proposed solutions, proposed compliance times, estimated parts availability dates, and other information regarding plans for resolving an unsafe condition on the DAH website. Designated parties can then view the information and provide feedback back to the DAH.

(8) Airworthiness Concern Coordination Process – A process in which a DAH, operators, and a regulatory agency work together to develop actions and accomplishment instructions necessary to resolve an unsafe condition.

4.2. AVOIDING OVERLAPPING AND CONFLICTING ACTIONS IN SBs

4.2.1. General.

This chapter provides a recommended process for DAHs to track AD-related SBs to ensure that they do not contain overlapping or conflicting actions that could lead to a non-compliance with an AD.

4.2.2. Tracking and Management Process.

A DAH should develop a robust SB/AD tracking and management system using the following process to ensure overlaps and conflicts between new and existing SB actions are identified and addressed:

a. Search capabilities should include the following primary areas:

- (1) Type/model or part number of affected product(s),
- (2) Major aircraft elements (e.g., engine, strut, wing, etc.),
- (3) ATA code,
- (4) Maintenance zones,
- (5) Service information (e.g., service bulletin number),
- (6) Airworthiness limitation sections,
- (7) Previously issued ADs, and
- (8) Planned ADs (i.e., action(s) that the Agency proposes to mandate in an AD).

b. When developing a new SB that will be associated with an AD, the DAH should search for any existing or planned ADs in, or affecting, the area of the new AD action and determine whether there are potential overlapping and/or conflicting requirements that could lead to non-compliance with any existing AD(s).

c. The DAH should document and maintain a record of its findings.

d. Upon review of the findings, the DAH should resolve any conflicting actions, e.g., the DAH might develop a new design and/or inspection.

e. Finally, the DAH should notify EASA of the results of its review and resolution of any conflicting issues prior to approval of the new design change or issuance of the SB.

4.3. MAINTAINING AIRWORTHINESS OR AD-MANDATED DESIGN CHANGES

4.3.1. General.

This chapter provides guidance to DAHs for helping owners/operators and maintenance providers avoid inadvertently undoing or modifying AD-mandated type designs through routine maintenance practices.

4.3.2. Maintenance of an AD-Mandated Design Change.

Once a product's approved design is changed by an AD, owners/operators may perform routine maintenance if that maintenance does not result in changing the AD-mandated configuration. The maintenance can be performed using a combination of the methods, techniques, and practices prescribed in the DAH maintenance manuals or ICA, or an operator's own maintenance practices accepted by the competent authority.

a. The potential for undoing an AD-mandated configuration should be evaluated during all stages of design and development of SBs, maintenance documents, or ICA (e.g., during the review/acceptance of the SB, maintenance, and ICA; SB prototyping/validation; and PAD consultation period).

b. To decrease the chances that maintenance will inadvertently undo or modify an AD-mandated type design, the following actions should be performed by DAHs:

(1) During the design change and SB development stages, evaluate the need for changes to maintenance manuals or ICA to eliminate the potential for undoing an AD-mandated condition or configuration. Update any maintenance manuals or ICA to support the AD-mandated type design changes.

(2) Provide awareness to owners/operators regarding availability of updated ICA documents.

(3) When drafting SBs, use notes for flexibility and refer to standard practices as much as possible.

(4) When drafting SBs, avoid duplicating entire procedures/instructions that reside in maintenance or other ICA documents. The SB should only list the specific requirement which must be met, not the entire procedure. Internal flags should then be placed in the associated maintenance document where the requirement is located to indicate that it addresses an AD compliance requirement (see paragraph 4.3.5 of this CM).

(5) Create a SB-to-AD cross-reference listing upon release of the AD (see paragraph 4.3.6 of this CM).

4.3.3. Availability of Maintenance Procedures or ICA.

A DAH should make new maintenance procedures or ICA or changes to them available as early as possible to owners/operators when an AD-related SB is issued (e.g., prior to the effective date of the AD).

Doing so helps ensure that owners/operators have the appropriate maintenance procedures or ICA necessary to maintain the product upon accomplishing or complying with the AD.

4.3.4. Allowing Flexibility.

Include notes and refer to standard practices in SBs when possible.

This will help prevent conflicting requirements/configurations from being created, and thereby reduce the likelihood that subsequent maintenance would de-modify the type design mandated by an AD.

4.3.5. Flagging Procedures.

When a SB specifies requirements that exist in a maintenance manual (e.g., an AMM), or when the SB instruction includes language to accomplish a procedure “in accordance with” a manual (see paragraph 4.1.9 of this CM) that is approved by a regulatory authority (e.g., the SRM), the requirement/procedure in the manual from which the requirement were duplicated, or the referenced manual, should be flagged by the DAH. The procedure should be flagged in a manner that identifies that the procedure/requirement in the manual held by the DAH is mandated by an AD. The flagged language should:

a. Be visible to the maintenance documentation authors for their use (i.e., not on the maintenance documents provided to the operators).

b. Contain a note similar to the following or list the SB and AD number once it becomes available:

Note: This procedure is used for maintaining compliance with SB XYZ, which is subject to or mandated by an AD. Do not alter this procedure without obtaining an acceptance from the Agency or the competent authority.

4.3.6. SB-to-AD Cross Referencing.

A SB-to-AD cross reference listing with SB revision levels should be included in the front of the DAH's maintenance manual(s) to help owner/operators identify which SBs are related to ADs. See figure 2.

Figure 2: Example of Aircraft Maintenance Manual SB-to-AD Cross Reference

Number	Incorporated	Started/ Completed	ATA	Subject
XXX-28-222	No Effect		-	FUEL – Fuel Quantity Indicating – Install Line Replaceable Unit Jumper Wires
XXX-28-226 AD 2011-0129	AUG 01/2009		SECTION 28-20	FUEL – Switch Fuel Level Float – Fuel Level Float and Pressure Switch In-Line Fuse Installation
XXX-28-229	No Effect		-	FUEL – Fuel Quantity Indicating – Replacement of Metric Instruments and Dripless Dipsticks with English Units

4.4. ANNEXES

Annex I. Examples of Notes in SBs

The following are examples of general notes that can be used in a service bulletin:

1. The instructions in Paragraph 3.B. I., Work Instructions and the figures can include operation of tools or test equipment. *{Specify appropriate document}* contain data on versions of the tools or test equipment that you can use. It is permitted to use replaced tools. It is not permitted to use superseded tools.
2. If it is necessary to remove more parts for access, you can remove those parts. If you can get access without removing identified parts, it is not necessary to remove all of the identified parts. Jacking and shoring limitations must be observed.
3. If the length of any fastener specified in this service bulletin does not meet installation standards given in SRM Chapter 51, then a fastener of the same specification, or an approved substitute, with a length which meets the installation standards given in SRM Chapter 51 may be used. In addition, washers may be installed for fastener grip length in accordance with SRM Chapter 51.
4. Where the work instructions include installation of a kept part, a new or serviceable part with the same part number can be installed as an alternative to the kept part.
5. This service bulletin includes functional test procedures for the systems changed by this service bulletin. More functional tests can possibly be necessary in accordance with standard maintenance practices because of interruption to other aeroplane systems.
6. Some *{Specify DAH name}* parts are supplied in a temporary configuration. Those parts are identified with a "U", "W", or "Y" in place of the "-" (dash) in the part number. It is permitted to install parts identified with a "U", "W", or "Y" as an alternative to the "-" (dash) part number. *{Specify document/drawing}* contains more data.

Annex II. Examples of Notes that Provide Flexibility in SBs

The following are examples of notes that can be used in a SB to allow flexibility:

1. The instructions identified in Paragraph 3.B., Work Instructions and the Figure(s) give the recommended sequence of steps. The sequence of steps may be completed first on either the right side or left side of the aircraft .
2. Equivalent parts are listed in drawing { *drawing number* }.
3. Refer to SRM Chapter 51 for approved fasteners and process material substitutions.
4. If the length of any fastener specified in this service bulletin does not meet the installation standards in SRM Chapter 51, then a fastener of the same specification, or an approved substitute, with a length which meets the installation standards in Chapter 51 may be used.
5. A 1/8-inch stack of the same type washers called for in this service bulletin is the maximum thickness which may be used under the fastener head or not to counteract accumulation of tolerances. EXCEPTION: When the available fastener length increments are greater than 1/16-inch, a 3/16-inch thick stack of the same type washers may be used.
6. Unless shown differently these dimensions and tolerances are used:
 - a. Linear dimensions are in inches.
 - b. Tolerance on linear dimensions, other than rivet and bolt edge margins, is plus or minus 0.03 inch.
 - c. Tolerance on rivet and bolt edge margin is plus or minus 0.05 inch.
 - d. Angular tolerance is plus or minus 2 degrees.
 - e. Hole dimensions for standard solid rivets are in { *aeroplane model* } SRM, Chapter 51.
 - f. Torque limits to tighten nuts and bolts are in { *aeroplane model* } SRM, Chapter 51.
7. The work instructions are divided into work packages. Task Hours and Elapsed Hours for each package are given in Paragraph 1.G., Manpower. You can do each work package independently.
8. Refer to the SWPM 20-10-01 as accepted wire installation procedures.
9. Refer to these SWPM chapters for applicable operations, as accepted procedures { *list applicable SWPM chapters* }.
10. Refer to { *aeroplane model* } AMM 20-15-11 for on-aeroplane software installation maintenance practices and data transfer times as accepted procedures.

11.

Linear Tolerances		Angular Tolerance
X.XX in. (X.X mm)	X.X in. (X mm)	+/-0°30"
+/-0.03 in.	+/-0.1 in.	
+/-0.8 mm	+/-3 mm	

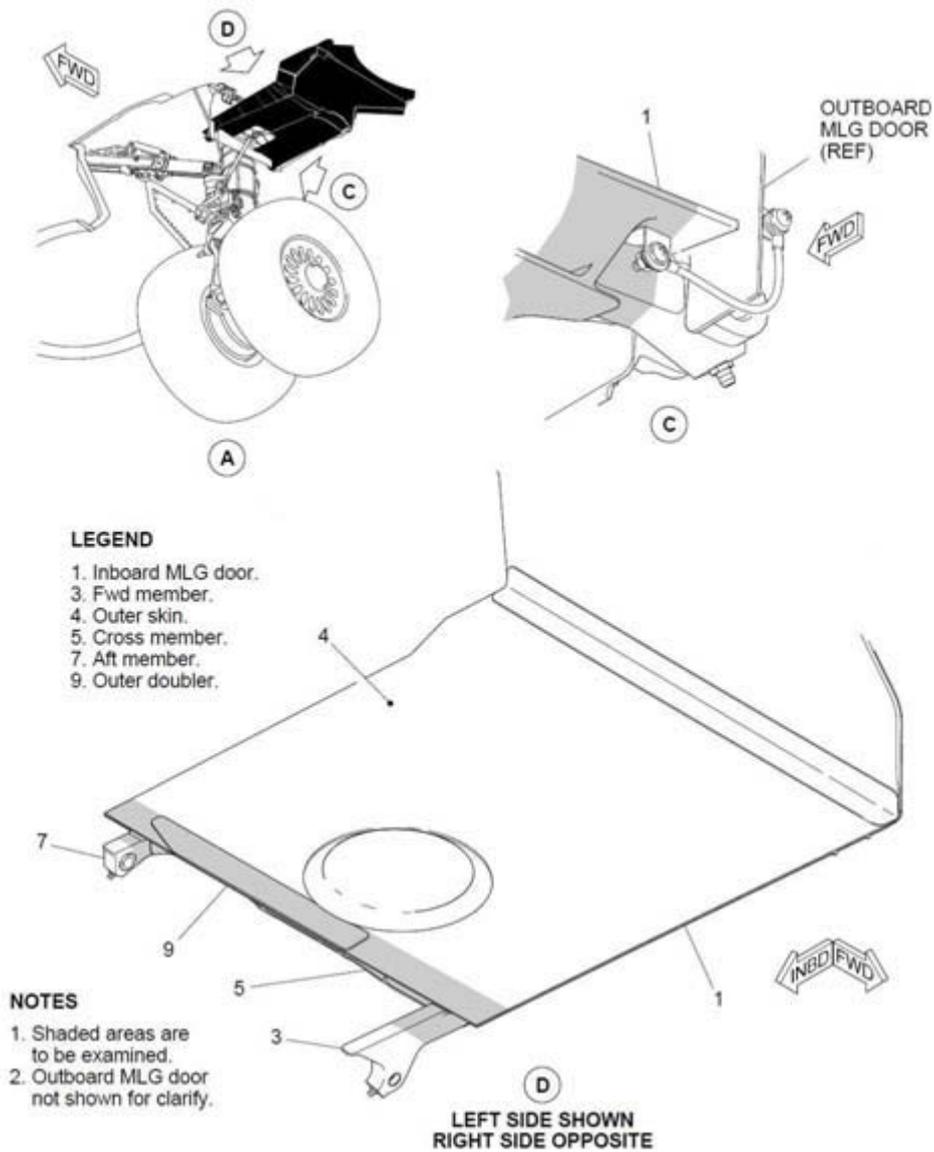
NOTE: The tolerances above apply to the dimensions given in this service bulletin except if specified differently.

12. This Service Bulletin Effectivity is divided into XX aircraft GROUPS according to the relevant configuration and the SB itself is divided into XX PARTS. The SB PARTS are featured to allow their independent accomplishment.

Annex III. Examples of Concepts to Clarify Illustrations

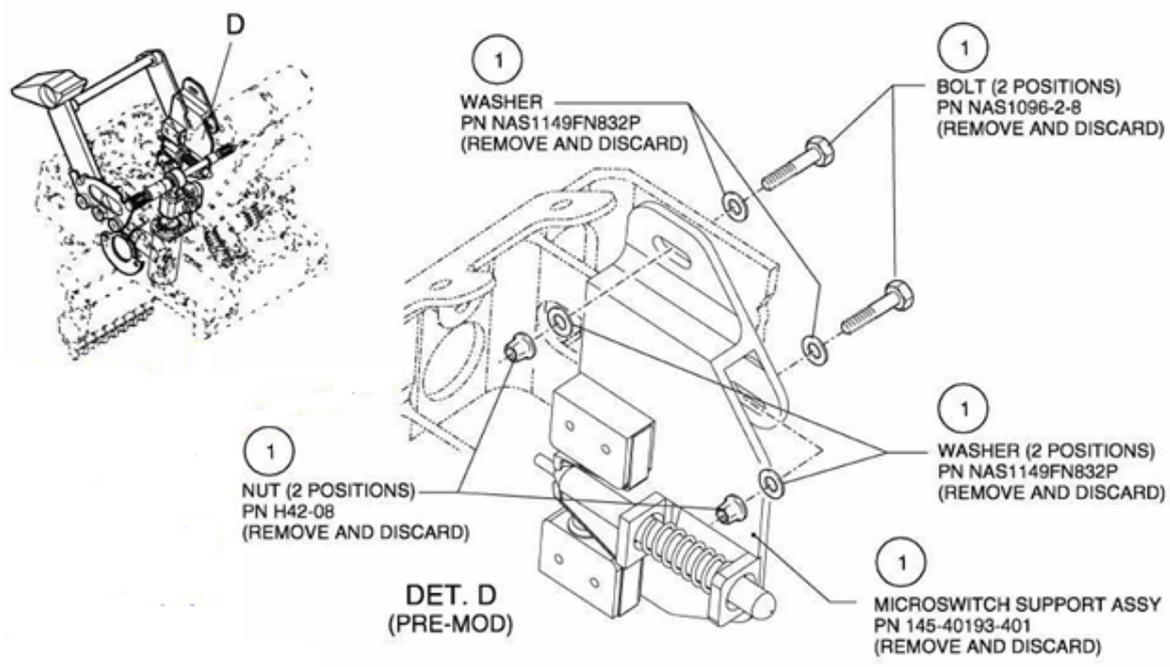
1. Shade/Cross Hatch Important Areas. Use this method to show important areas, such as those to be inspected. This method can also be used for other situations as long as the intent of the shading or cross-hatching is communicated clearly.

Figure 3: Example of the Use of Shading Important Areas



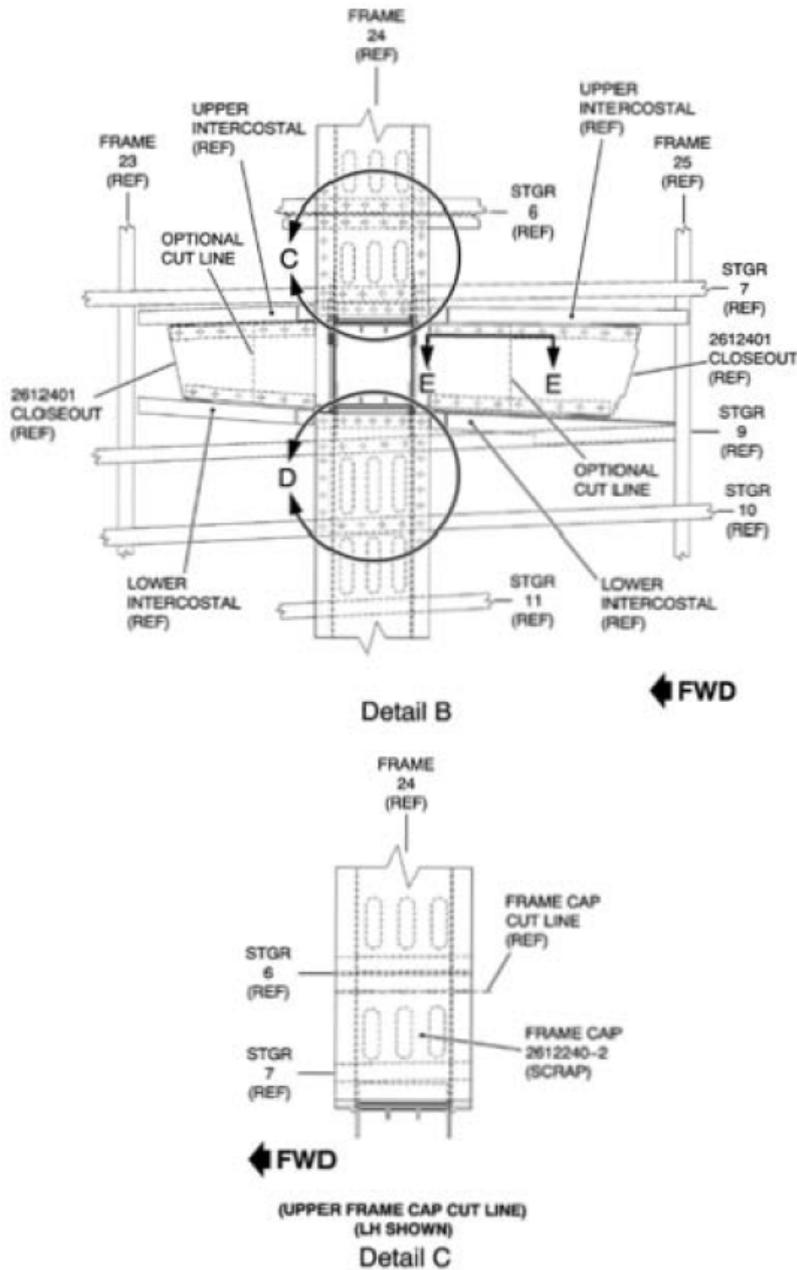
2. Phantom Lines. Use this method to show the location of a part, etc. for reference purposes. This method can be used for other situations as long as the intent is communicated clearly.

Figure 4: Example of the Use of Phantom Lines



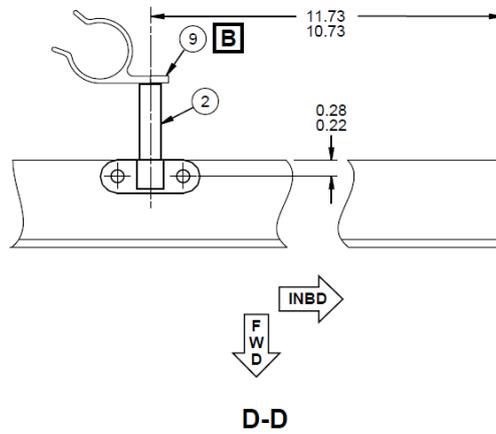
3. Enlarged Views in Illustrations. Use this method to provide emphasis on a certain part of an illustration. This can also be used for other situations as long as the intent is communicated clearly.

Figure 5: Example of Enlarged Views in Figures



4. Dimensions and Tolerances. Use this method to show dimensions and tolerances for particular locations on parts.

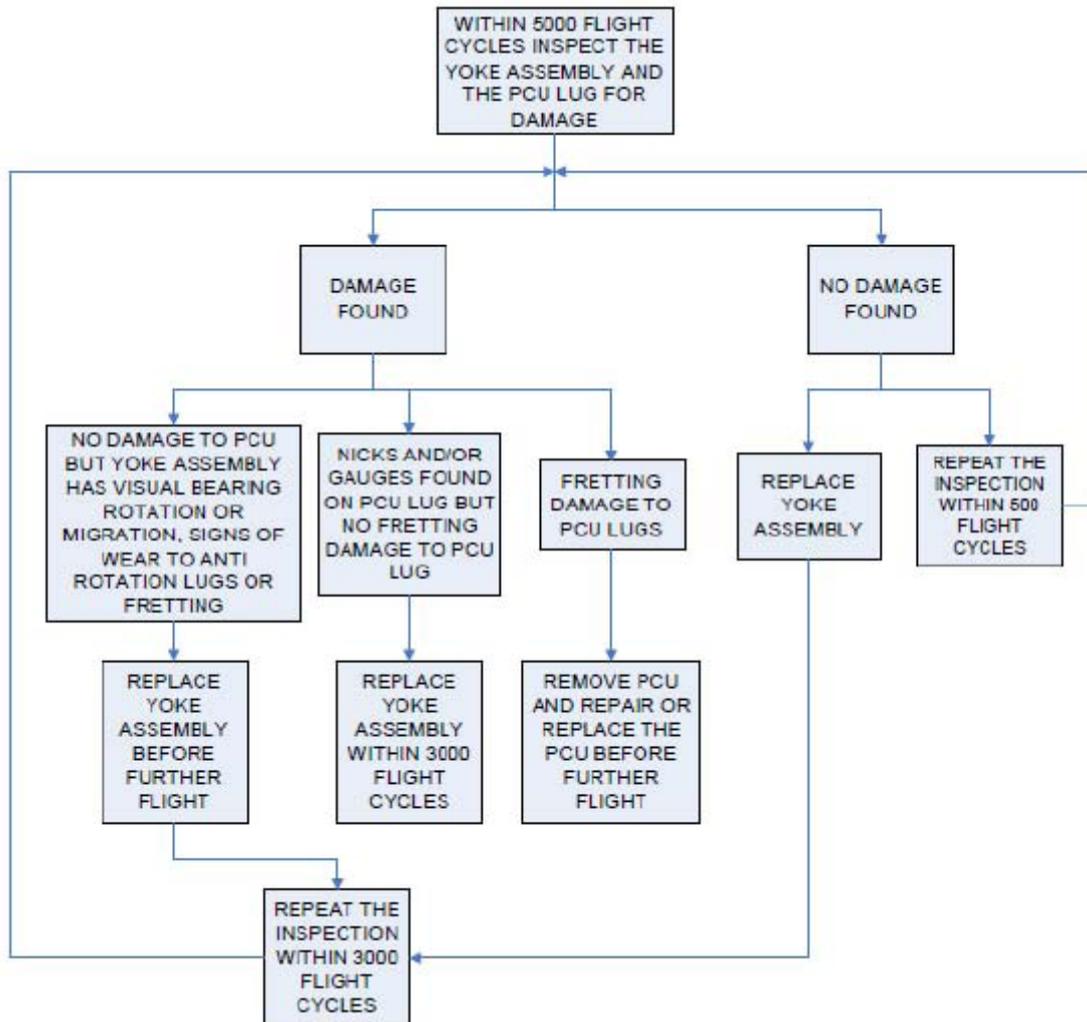
Figure 6: Example of Dimensions and Tolerances



Annex IV. Example of Logic-Based Diagrams

The following is an example of a logic-based diagram.

Figure 7: Example of Logic Based Diagram



Note: The logic-based diagram only supplements the information in the accomplishment instructions/compliance paragraphs and is not intended to serve as the primary source for tasks or compliance times in this SB.

4.5. WHO THIS CERTIFICATION MEMORANDUM AFFECTS

This Certification Memorandum affects all design organisations issuing Service Bulletins, either under DOA privilege as defined in Article 21A.263 (c)(3) of Annex Part 21 to Commission Regulation (EC) No. 1702/2003 or not, as well as the addressees of such Service Bulletins.

5. REMARKS

1. This EASA Proposed Certification Memorandum will be closed for public consultation on the 24th of August 2012. Comments received after the indicated closing date for consultation might not be taken into account.
2. Comments regarding this EASA Proposed Certification Memorandum should be referred to the Certification Policy and Planning Department, Certification Directorate, EASA. E-mail CM@easa.europa.eu or fax +49 (0)221 89990 4459.
3. For any question concerning the technical content of this EASA Proposed Certification Memorandum, please contact:

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