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# introduction

## Executive Summary

This document provides industry guidance to supplement ATA standards and airframe requirements, addressing gaps and vague areas to move suppliers/vendors and airframers toward a common standard for format and wording in Service Bulletins (SB) for Air Transport components, referred to herein as Vendor Service Bulletins (VSB).

This document is intended to supplement the VSB guidance of iSpec 2200, providing clarity of requirements and resulting in a common standard wording and format of VSBs from all suppliers on all aircraft types.

The guidance in this document is intended to be applied to VSBs created and released subsequent to the release of the guidance document and will not require the retroactive update of VSBs released prior to the creation and release of the guidance.

## ATA Formatting of VSB

The focus of this document is the planning information section under the ATA formatting for the VSB as defined in iSpec 2200 and ATA 100. The planning information list following sections.

* Effectivities
* Concurrent Requirements
* Reason
* Description
* Compliance
* Approval
* Manpower

## Terms

Terms used to direct accomplishment of a VSB or terms within a VSB need to be selected carefully to ensure the appropriate intent and interpretation is met.

All VSBs are by nature not mandatory or required for airworthiness unless directed for accomplishment, in full or in part, by an Airworthiness Directive (AD) or other regulatory requirement (ex: SFAR88). Therefore, terms used should be selected based on the intent within the context of the VSB and not for establishing airworthiness or regulatory compliance of the next higher assembly (NHA) or of the aircraft. For instance, to state that operators “must accomplish” a VSB or that the VSB is “mandatory” would only be accurate and appropriate if accompanied with the reference to an AD or other regulatory requirement. Similarly, if a specific component or unique process is necessary within the VSB, the terms “must” or “required” may be appropriate.

### Preferred Terms

|  |  |
| --- | --- |
| Mandatory | Use as an imperative within the scope of the VSB or to direct use of a sub-tier document. This cannot apply as a requirement to the aircraft operator for accomplishing the VSB unless it is stated in combination with an AD or regulatory reference. |
| Must and Must not | Use as an imperative within the scope of the VSB. This is the preferred term in lieu of “Mandatory” or “Required”. Use to direct tasks, parts or processes to be applied without alternate or substitution |
| May and Recommended | Use in a permissive sense to state authority to do the act prescribed, and the words "no person may…” or "a person may not… means that no person is (is not) required, authorized, or permitted to do the act prescribed |
| Includes | Use to mean “includes but not limited to”. Similar to, but not as definitive as the term “or equivalent” when applied to materials, tooling, etc. |

### Terms to Avoid

|  |  |
| --- | --- |
| Shall and Should | These terms are ambiguous and are easily misinterpreted. Even the FAA is conflicted in their use (ref: 14CFR 1.3 Definitions vs. FAA Order 1000.6 and Federal Plain Language Guidelines). Use of the Preferred Terms above will better convey intent and avoid misinterpretation. |

## Aircraft Components – LRUs, SRUs, and Piece Parts

In this document, aircraft component means Line Replaceable Unit (LRU), Line Replaceable Module (LRM), or Line Replaceable Item (LRI). Within these, there may be Shop Replaceable Unit (SRU), which are the next lower replaceable unit of an LRU/LRM.

Piece parts are individual parts that are used for the repair of an aircraft component or SRU.

# How to Write the Reason Statement

## Types of VSB

A VSB is the document used by manufacturers of aircraft components to communicate details of modifications or inspection which can be embodied into the components.

There are several reasons for making a VSB. Below are some examples.

* Mandates
* Safety
* Software Updates
* New Functionality
* Obsolescence
* Manufacturing Improvements
* Reliability or Performance Improvements
* Etc.

## Concurrent Requirements

When a minimum state of evolution or a minimum configuration is required prior to the application of a VSB, it must clearly be stated. This can be done through a list of previous VSBs which must be embodied.

## Reason Statement

. Airline operator has to assess the impact of the VSB on operations and costs by use of the reason statement. Therefore, it becomes a key part of the cost/benefit analysis which airlines perform in determining whether to install a VSB, and if they are to install it, at what rate they will modify their affected units.

It provides a common and technical understanding of the background of, and purpose for, the modification for both airlines and supplier, independent from their technical background.

Depending on the root-cause for publication of a VSB the reason statement has to provide different information. The subsections

below describe the different information required in these instances.

### Performance Increase, Mandate or Obsolescence

If the VSB is for a product improvement, that needs to be clearly stated, and a description of the improvement and its expected benefit (including figures if available like delta MTBUx) should be included.

If the product improvement is in response to a mandate, then the description needs to explain the modification that the VSB will install, and the mandate which this will satisfy. (Examples: ADS-B, 8.33 kHz channel spacing, etc.)

If the VSB are for obsolescence that should be clearly stated. If the VSB is only needed in the case of a repair requiring the replacement of an obsolete part which is no longer available, that should be clearly explained to prevent an Airline operator from campaigning the VSB across their fleet unnecessarily.

### VSB is Related to Operational Deficiency

In case the VSB handles an operational deficiency, which includes be benefits to the aircraft in flight, the safety of the aircraft, or the reliability performance of the unit to modify. At best, the information provides details any operator can find in in his daily business during operation such as technical Logbook (TLB), Cabin Logbook (CLB) or Ground Logbook (GLB).

The Reason Statement should answer the following question related to this VSB: What is the operational effect/flight Deck Effect that is addressed by the VSB, and are the airlines seeing removals of this component due to this effect?

The statement provides also an overview about the probability or frequency of the problem in order to help quantify how the implementation of the VSB is expected to provide operational benefits. It provides a description what kind of operational improvement will result from the VSB, such as reduction of Nuisance Faults, Error Code/fault messages on maintenance displays, Bite information, and System behavior on aircraft system level if applicable.

### Examples of Written Reason Statements

Below is an example of well written reason statement.

Potential problem in AMP1 2235138-X, which causes an intermittent DFDR Receiver fault in FDIMU BITE Power On Self Test (Post). This fault results in a “RECORDER SYS FAULT” indication. It is a nuisance fault which is cleared by a power cycle or a Manual Test and does not affect the actual performance of the FDIMU. The probability of occurrence is calculated to be 1/1200 POST cycles.

Below is another example of a reasons statement. This example is a poorly written example. The reason statement provides detail technical content but does not provide information to correlate to a flight deck effect.

This modification will reduce the main processor’s DSP crystal oscillator circuit discharge time to always make sure the Multi-Mode Receiver will start during power transients. If the blocking DC capacitor is slow to discharge, it could produce BITE fault A7, SW\_FAILURE\_TYPE\_A. This BITE fault indicates lack of acknowledgment of configuration initialization by the DSP to the 486 processor.

## Description Statement

The Description Statement is linked to what is performed to the component. Mainly it should describe the background on the component level. The description should include internal failure codes, appearance of the failure and how it is corrected.

It important that the description support a clear overview on the required action to fulfill the VSB.

Below is an example of well written description statement.

(1) This bulletin provides the instructions, material information, and testing necessary to complete the modification of the unit. The modification consists of removal, reassembly with a SRU 1234 , and 1234 testing.

(2) A summary of the work necessary to do this modification is given below.

(a) The unit is disassembled and the old SRU is removed.

(b) The old SRU is replaced with a new SRU.

(c) A visual inspection of the battery date is performed on the SRU.

(d) The unit is assembled.

(e) The MOD is identified on the ID plate.

Below is another example of a description statement. This example is a poorly written example. The description statement provides part number change information but no correlation why the changes. Even if it would describe a case of obsolescence the reason is not clear.

For unit P/N ABCDE AMDT B:

Creation of the SRU1 board P/N 1231454 AMDT A and the SRU2 board P/N 234654 AMDT A.

For unit P/N BCDEF AMDT B:

Creation of the SRU1 board P/N 1231454 AMDT A and the SRU2 board P/N 234654 AMDT A and the SRU2 board PNR 345678 AMDT A.

For unit P/N CDEFG AMDT B:

Creation of the SRU1 board P/N 1231454 AMDT A and the SRU2 board P/N 234654 AMDT A and the SRU2 board PNR 345678 AMDT A.

## Partial Implementation of a VSB

Partial implementation of a VSB is not a preferred practice. It should always be the goal that implementation of a VSB is performed in one single event. Cases where one cover VSB referencing different other VSB in order to support further improvements of the unit, must not be published.

In cases here there is no other way to publish a VSB, clear marking instruction must be provided.

# Pricing

## Pricing

Pricing of VSB must be done in a consistent manner which best serves the Airlines ability to plan and budget modifications to their equipment.

Note: Disagreement exists between large airlines and their MROs, who prefer individual pricing of piece parts, including software and other non-hardware parts required. Airlines who do not perform their own repairs prefer total cost of installed modification as this is more useful for cost/benefit analysis of the VSB.

An explanation of the different pricing types is provided below. Guidance for how and when the various pricing types are to be used is provided in Section 7.0 Harmonization.

### Installed Cost Pricing

This method provides the supplier’s current list price to install the modification at their repair facility. The installed cost is the price to modify a serviceable unit which was removed from the aircraft only for modification, and has any prerequisite modifications, as specified in the service bulletin, installed. The installed cost includes Return to Service Testing, tagging (8130, Form 1, or equivalent), and all administrative and processing costs.

### Piece Part Pricing

This method provides the supplier’s current list price for the individual parts required to install the modification. Parts listed in the material list of the service bulletin are each priced individually. Labor hours are estimated elsewhere in the service bulletin, however other costs such as testing and administrative costs are not included.

### Kit Contents

If there is a kit to be ordered for accomplishment of VSB, then kit contents must be listed and each item in the kit must be specified. Pricing for the kit should be provided if a kit of parts required is available.

### Price and Availability Information

Pricing of each material item must be listed unless the total cost for the service bulletin is provided (per iSpec 2200).

## Hardware Parts

These include individual electrical and mechanical components, which can be individual piece parts, sub-assemblies, or assemblies as required for accomplishment of the modification.

## Software

If provided as a separately priced item, the price for the software required for the modification is the cost for purchase by the customer. It includes any media, labeling, and documentation required for the use of the software. Software often contains Intellectual Property (IP), which may be priced as a part of the software where the IP value is included in the software price rather than as a separate item. Software also often comes with a licensing requirement in the form of an End User License Agreement (EULA) or a per seat type license of some type.

## Expiration of Pricing

Pricing from suppliers is generally valid for the current calendar or fiscal year of the supplier and is subject to subsequent annual escalation or market-based adjustments. The expiration date for the pricing must be listed in the VSB. This is the same whether the service bulletin total cost is provided, or the individual pricing of the parts used is provided.

AI: add validity date…CA

## Part Availability

Parts required to accomplish the modification must be available from the supplier at the release date of the service bulletin.

### Limitations of Part Availability

Regulatory Mandate and Reliability Improvement Program VSBs often create a spike in demand for parts immediately upon release of the service bulletin, or a demand by airlines for parts required to modify their entire fleet within a short period, which cannot be realistically met by a supplier. In these cases, the supplier, or the OEM of the aircraft, may manage the availability of parts through an allocation program.

In all cases, the supplier and/or OEM will communicate the modification plan for the individual airline’s fleets, or for the aggregate modification efforts.

## Warranty Considerations

Warranty Considerations for parts should be included with the overall warranty considerations for the service bulletin. As a general practice, suppliers may require customers to purchase parts and then process a warranty claim to the supplier for reimbursement on a per-unit serial number basis. This allows the supplier to verify the warranty status of units which the parts are used to modify, and to track configuration of the units as they are modified.

## No Pricing Provided

A Vendor Service Bulletin may be published without price if the modification is Free of Charge for the Airlines, only during the Free of Charge Period.

As soon as the VSB becomes chargeable, a price should then be published.

And

If a supplier has a comprehensive price catalog accessible by the operators, and regularly updated, then the supplier can refer to this catalogue in place of the price. This allows the operators to have a direct access to an up to date price of application for the VSB.

By referring to a catalogue for the price will lead time lost to the airlines & MRO.

And

Note: We can also cover cases of VSB published only for config management. We have VSB which will never be applied, and introducing an SRU in prod..with ridiculous prices (SRU exchange).

The note can be added: the note “these parts are commercially available, at minimum price

# Sub-tier suppliers

## Objectives

Operators and Airframers must have one single point of contact with regards to support of an equipment. This single point of content is called tier one supplier, and this supplier is responsible for all communications to the Airline Operators.

Therefore, operators and airframers are not involved in any direct communication with sub-tier suppliers and deal with one single self-contained VSB whatever the number of sub-tier suppliers which are involved in the manufacturing of the equipment.

## VSB Content

### Assigned Sub-Tier Suppliers

This applies to sub-tier suppliers assigned or mandated by the airframer (such as on the 787 or A350)

VSB must be compliant to Airframers specifications (e.g. CDIM and VSB guide for Airbus or Supplier Technical Data Guide for Boeing).

* Tier one VSB must contain all information from the sub-tier VSB:

It is not authorized having a sub-tier VSB added in appendix of the level one Supplier VSB or having the level one VSB that refers to the sub-tier VSB as this sub-tier VSB will not be available to the Airline Operator or be approved by Airframer.

* Tier one VSB must show level one supplier logo and support contacts. It is acceptable having a second logo of the sub-tier.
* Tier one VSB must contain final price i.e. the price that will be charged by level one supplier to operators.
* Tier one VSB can consist of cover pages from the tier one supplier which provide the required tier one information, and which surround a VSB from a sub-tier supplier which provides the material information and accomplishment instructions.

For liability reasons, level one supplier must not update sub-tier VSB content. As a consequence, sub-tier supplier must provide to level one supplier all above information.

AI: DLH to provide an example

### Other Sub-Tier suppliers

Sometimes suppliers choose to have a product they market be developed and produced by a third party. In these cases; the product is identified as that of the tier one supplier and sold under their part number. It is preferable for these products that any VSBs for these products follow the same guidance as is provided above for assigned sub-tier products.

Tier one suppliers must remember when contracting with third parties that they have an obligation to provide modification and return to service information to the Airline Operators and must ensure that all necessary information can be made available in VSBs and other documentation.

AI: 8130 and Mod dots marking consideration.

Text needs to be added on OEM and ODM (original design manufacturer) difference in order to tell who is responsible for in terms of Tier1/Tier2 etc.

### VSB PUBLICATION

Operators and Airframers must see only tier one supplier VSB.

Therefore, tier one supplier is responsible to provide final VSB to Airframer and to publish the VSB on its own website accessible by operators.

Even though Sub-tier shops use sub tier VSB, Sub-tier suppliers must not publish their VSB to avoid operators’ confusion.

# REVISION to Service bulletins

## VSB Revisions

AI: 3.7. Revision Transmittal Sheet explanation of the changes

Service bulletins can require revisions over their life for a number of reasons. This can include correction of some types of minor errors, addition of new part number of a unit type to the VSB, improvements to the service bulletin, obsolescence, etc.

Care must be taken in revising a VSB so that units modified by earlier revisions of a VSB are not left orphaned by subsequent revisions. In general, if a part or all of a released VSB becomes obsolete or non-preferred, it must not be removed from the VSB in a revision, but rather marked in a way to indicate that the affected portion of the service bulleting is not to be used after a certain date (the date of the subsequent revision) and that an alternate method should be used for modifying any units from that date forward. This provides the documentation required for the modifications made to any previously fielded units modified by earlier revisions of the VSB.

Revisions should be indicated by a sequential letter or number, and a table should be included showing the dates of the release of all revisions. Revisions should include change bars in the margin indicating the test that was changed or added.

## Revisions due to Errors

Despite great care in the preparation and review of VSBs, errors can still occur. If the error is a minor typographical error or other minor editing error, such as transposing a part number so that it is invalid, which would prevent the VSB from being installed in a unit, then the VSB may be revised. These revisions should be done only as an exception to the normal VSB process and should be subject to special review to insure there are no fielded units affected by the error.

If the error results in an erroneous modification to units in the field, then the preferred method is to supersede the erroneous VSB with a new VSB to correct the problem. In all cases, there cannot be multiple differing configurations of a VSB modification.

## Addition of Unit Part Numbers to a VSB

Often there are multiple part numbers of a given product type which are for the most part the same unit. Examples would be units with different part numbers for different aircraft types, or a part number changed due to an improvement to the product. Over the life of a product new part numbers may be released to which an existing VSB is applicable. It is acceptable to revise a VSB to add these new or additional part numbers. However, care must be taken that any specific differences in the modification for an individual part number are clearly identified in the revised VSB.

## Addition of Serial Numbers to a VSB

Some VSBs are applicable to specific unit serial numbers, or a range of serial numbers, which are specified in the Effectivity section of the VSB. In some cases, after release, it is found to be necessary to add additional serial numbers to the VSB, or, when adding an additional part number (Section 5.3) the serial numbers or serial number range for the additional part number must be added. It is acceptable to add serial numbers to a service bulletin, however it is not acceptable to remove a serial number, except in the case of a typographical error where the serial number listed is not applicable to the unit type or part number.

## Technical improvement to a VSB

In some cases, a modification is found to result in unexpected side effects, such as degradation in reliability performance. An example would be a VSB which provides complex modification instructions for a circuit card assembly as an alternative to replacing it with a newer revision of the assembly. If in practice the modification performed to the assembly is found to degrade the unit performance or reliability, it may be desirable to discontinue the modification of existing assemblies, while still performing the VSB by replacing the assembly with a newer revision.

In this case, the section of the service bulletin providing instructions to modify the circuit card assembly would be preceded with a statement “The modification of Assembly Ax is not to be performed after mm/dd/yyyy. The assembly should be replaced per the instructions in section a.b.c. to install this service bulletin after that date.

Note that the original modification instructions should not be removed from the VSB when revising it, as there are fielded units which have been modified using the existing instructions. Instead, that section of the VSB is “obsoleted” by identifying it as no longer to be installed after a specified date.

## Superseding or Obsoleting a Service Bulletin

If a VSB is to be made obsolete or non-preferred, it can be revised to state “This VSB is no longer to be installed into units after mm/dd/yyyy.” If it is superseded by another VSB, it should be revised to state. This VSB has been superseded by VSB aaa bbb ccc effective mm/dd/yyyy, and may not be installed after that date.

Note that in both cases the existing VSB, and the technical data in it, are not deleted, as it applies to existing fielded units.

# documentation

## Objectives

A VSB describes all the aspects of a modification and ensures continued airworthiness in the time between certification and technical publication update.

The VSB must contain the following information / references to give clear guidance in its application or validation by an Airline Operator.

## Reference to CMM

At the time of edition, the VSB must contain the reference of the current version of the CMM, containing the Illustrated Parts List at time of the VSB redaction.

When relevant, reference to other type of Technical Publication can be made, such as Standard Practices, Optional Part Number Catalogue etc. However, any referenced publication must be available to the Airline Operator. Internal documents and Engineering documents which are not available must not be referenced, rather, the information from these documents will be included as a part of the VSB (See Section 6.2.4).

### Evolution Tree (Family Tree Chart) - optional

The VSB may contain a chart which gives an overview of the component evolution, showing the impact of previous VSB on the PNR/amdt/Mod on the LRU, LRU which are evolving. See example in appendix a Thales to provide generic illustration.

### Configuration Management

The VSB must contain all the required information to ensure configuration management, particularly for LRU with data loadable software.

This may be done through a table listing the current VSB and previous relevant VSB, the part number which are evolving, names, media, etc…

### Mod marking must be external to the box

Mod or Amendment evolutions which are introduced by the VSB to the LRU, and its previous history must be clearly marked on the outside of the LRU, ideally close to the Part Number label. Mod markings should be accomplished as specified in ARINC 422-1: *Guidance For Modification Status Indicators And Avionics Service* Bulletins

### No Reference to Documents that are not Available to the Airline Operator

In the accomplishment part of the VSB can refer to documents containing for example specific procedures. In order for the Airline Operator to meet its continued Airworthiness requirements, the supplier must make those documents available to the operator, as means of validation. Internal documents and engineering documents which are not available to the Airline Operator should not be referenced, rather, the information from these documents should be included as a part of the VSB.

In the Reference Chapter, the supplier can refer to document like EDES, FEE, Aircraft Mod which are document usually only exchanged between the supplier, airframer and certification authorities. These documents do not have to be shared with the operators.

### Photographs and Drawings

Use of drawings and Photographs is encouraged, to provide help in the application of a procedure that is difficult to describe in simple words.

# harmonization

## Objectives

The objective of this document is to provide guidance which will result in a standardization of VSBs produced for Air Transport Avionics. This standardization will drive a common format and standardized wording to be used by all Suppliers and accepted by all Airframers. This standardization will simplify the review and implementation of VSBs by Airline Operators.

ATA guidance (provided in iSpec 2200) on VSBs leaves some ambiguity which has led to divergence of formatting/wording used by Suppliers, and to divergence of VSB requirements driven by Airframers. Some specific examples are discussed in this section, and recommended standardization is provided.

## Examples and Recommendations

### Compliance Recommendation

ATA guidance specifies 4 categories of Supplier recommendation for accomplishment of the VSB. These are:

* Service Bulletin must be accomplished
* Service Bulletin recommended to be accomplished to prevent significant operational disruptions
* Service Bulletin to introduce improvements
* Service Bulletin for convenience or option

Currently multiple naming conventions are in use for these categories, depending on the Airframer whose aircraft the product is used on and/or the Supplier producing the unit. The table below contains the recommended standardized naming convention for the Compliance Recommendation categories.

|  |  |
| --- | --- |
| Compliance Recommendation Category | Standard Name |
| Service Bulletin must be accomplished | Mandatory |
| Service Bulleting recommended to be accomplished to prevent significant operational disruption | Recommended |
| Service Bulleting to introduce improvements | Desirable |
| Service Bulletin for convenience or option | Optional |

### SB Pricing

The preferred method for pricing is for the supplier to provide a total cost for implementation of the VSB. This method best serves the Airline Operator in determining their cost of updating their fleets and in performing a cost/benefit analysis of the VSB for their operations. Pricing of individual piece parts is an additional and unnecessary burden for the supplier as current piece part pricing from suppliers is available in their parts catalog which must be available to both Airline Operators and MROs. This part pricing must be updated and kept current by suppliers on at least an annual basis.

In the case of any unique parts or assemblies required for a VSB which are not listed in the supplier’s catalog, the pricing of the unique parts or assemblies will be included in the VSB, with an expiration date of the next supplier catalog update at which time the unique parts or assemblies will be added to the supplier’s catalog.

In the case of a supplier which does not have a catalog of part pricing available to the Airline Operators and MROs (for example a small supplier), the alternative is for the supplier to provide the pricing of parts (material) as a column in the material list (described in 7.2.3.) for each part used.

By referring to a catalogue for the price will lead time lost to the MRO. This is FHS request who act as MRO having the price at individual piece parts

### Material List

ATA guidance requires a list of all material used be included in the VSB. This Material List must include the true vendor part number and vendor or generic part number as well as any supplier assigned part number. This guidance is the same as that which applies to CMMPLs in providing True Vendor Part Numbers for all Material items used. An exception is for assemblies produced by the supplier creating the VSB in which case the only part number available is the supplier’s unique pat number.

Pricing for individual parts does not need to be included as a part of the Material List except in the cases described in Section 7.2.2.

### Special Approval Statements

Approval statements in VSBs will be limited to those referring to, or required by, applicable regulatory agencies (e.g. FAA, EASA, CAAC, etc.) Suppliers will not add, and Airframers will not require additional approval statements specific to their approval, as these defeat the goal of standardization of format and wording for VSBs for all Suppliers and Airframers.

One Template for all….

* Airframers
* Suppliers
* Define the four categories and reference the ATA document Ispec 2200
* BFE
* SFE
* SSFE (Selectable Supplier Furnished Equipment)
* One template for all air transport VSB

# consumables and chemicals

## Defining the Material:

Consumable Materials, Components, Chemical materials needed to apply the VSB must be stated within the VSB.

All the subject materials that are necessary to accomplish the VSB, must be written in the VSB having the below information;

1. Generic name of the consumable or chemical
2. Contact information
3. original vendor part number and name
4. OEM part number of the material information for traceability
5. Material Safety Data Sheet if applicable

## Quantity of the Material:

If at all possible, the amount of consumable or chemical needs to clearly stated in terms of weight, size, and quantity.

The amount of the material necessary needs to be also stated clearly in terms of either weight, size and special characteristics such as color, conductivity etc.

## Equipment Needed:

In case, where a special equipment/a tool is necessary during chemical material application or consumable usage, it must be specified with part number, model number, and manufacturer information.

Usage of special equipment/tool may be included in the accomplishment instruction in the VSB

Alternative equivalent tool usage may be stated if a suitable alternative is available.

## Hazardous Materials:

Hazardous materials must be stated with warnings and cautions where applicable.

## Use of Tables for Part Numbers

Consumable Materials, Components, Chemical materials may be listed in a table having the above information for easy traceability of each item.

Old part numbers and new part numbers of the materials may be given in these tables for better explanation; however; the currently used part number at the time of the VSB release is the part number required. VSBs will not be updated throughout their life to update obsolete or changing part numbers.

1. Example of a Figure – this is ADDITIONAL text to make the line roll to allow for alignment
   1. How to Submit a Drawing

It is preferred to have all drawings submitted in Visio format. Once you have completed the drawing, we ask that you provide the original drawing; and, if you have incorporated the drawing into the document, we ask that you submit the document as well. If you have not incorporated the figure, please include the suggested placement of the figure.



1. Example of an Acronym List

AD Airworthiness Directive

VSB Vendor Service Bulletin

EDES Equipment Definition Evolution Sheet

OEM Original Equipment Manufacturer

LRI Line Replaceable Item

LRM Line Replaceable Module

LRU Line Replaceable Unit

SRU Shop Replaceable Unit

There are several types of modifications, which can be introduced by a Vendor Service Bulletin, and the reason statement can be very different.  
This section provides guidance and examples on how a reason statement may be written:

* Mandates:  
  The VSB will have the mandatory status, if the VSB is part of an Airworthiness Directive required action / Compliance.  
  The Reason Statement can include a reference to the Airworthiness Directive, but will essentially provide the reason in the form of a software or design change to correct a condition. The fix to this condition must be the main reason of the VSB reason statement.  
    
  “This VSB introduces a software improvement to the Flight Control Computer PNR xxyy, to prevent the occurrence of undue aircraft pitch up, along with Message “A/C FC FAULT”  
  This VSB is associated to EASA AD-2020-00xx and FAA AD 2020-00yy”
* Software Update:  
  The VSB introduces a Software standard. The reason Statement must focus on the benefit, and operational improvements brought by the software standard to the operator.

“This VSB introduces Software Standard B34 to the Ventilation Computer PNR xxxxx  
The main improvements / changes are as follow:

* Improvement of the ventilation logic, to prevent opening of ventilation valves on ground
* Improvement of the software robustness to spikes generated at Engines power up, and will prevent spurious VENTILATION FAULT
* Obsolescence:  
  The VSB introduces an obsolescence of a component or SRU. The reason must clearly state that the VSB is release for the treatment of this obsolescence, and that it must only be embodied upon failure of the obsolete component.

“Following the Obsolescence of the Fiber Optic Module xxx located on the Symbol Generator card, a new FOM Module yy is introduced as replacement.  
As the new FOM does not have the same thermal characteristics, the heat sink must also be replaced.

This modification will be embodied upon failure of FOM xx, and if the component is no longer available”

* Manufacturing Improvement:  
  The VSB is released following a modification, whose only goal is to improve the manufacturing process or yield.  
  Usually these modifications have no impact on the operations of the product, and this should be clearly stated in the reason statement.  
    
  “This Service Bulletin introduces a modification of the standby instrument, to improve its manufacturing process, particularly during the environmental testing.  
  The modification introduces a robustness to the power supply, to reduce the failure rate during a production step, which tests the Standby Instrument startup sequence at -60°C.  
  This modification has no impact on the LRU in operation, and this VSB is released for configuration management only.
* Reliability:  
  This Service Bulletin introduces a modification in order to improve an LRU Reliability, either addressing a particular hardware issue, or a system/software issue which will have a direct impact on the reliability.  
  The reason statement must provide information on the impact at the operator level.  
  If possible, an information of the improvement magnitude can be given, but cannot be contractual.  
    
  “This Service Bulletin introduces new hi power transistor in the VHF radio, and prevent early failures of the emitter stage.  
  The modification will prevent VHF Loss, associated with the “VHF FAULT” message.  
  The reliability of the VHF improvement is in the order of 30%.”
* New Functionality

This Service Bulletin introduces a new functionalily to an LRU, or a system.  
The reason statement must focus on the added value for the operators rather than the technical modification.

“This Service Bulletin introduces the SBAS function to the GPS receiver PNR xxx. This will allow operators of the Aircraft to implement SBAS type of approach in their procedures.”