

SUMMARY SHEET
Airworthiness Directive Implementation Aviation Rulemaking Committee
 Service Information Working Group

Primary Report and Recommendation	Flexibility as appropriate (Task 2) Recommendation 1: (T2, R1, B4)
Secondary Report and Recommendation	None
Assigned Members	Chip Amidon (Boeing) Serge Cheyrouze (Airbus) Maureen Moreland (FAA - ACO) Tom Novello (JetBlue Airways) Jim Phoenix (FAA - ASI)
Links to Other Working Groups	None

WORKING GROUP REVIEW OF ISSUE/PROBLEM

Service bulletins contain detailed step by step instructions necessary to perform the inspection, repair, modification, and/or testing to perform tasks described in the service bulletin. However, often this leads to putting an air carrier into a position that does not allow them to use accepted or approved alternate parts, material or processes. This in turn results in air carriers having to submit a request for an Alternative Method of Compliance (AMOC) each time they wish to use alternate parts, material, tools, or processes. Some Design Approval Holders (DAH) currently include general notes that give air carrier some flexibility to use alternate parts, materials, and processes, but still meet the design requirements for the aircraft. However, not all DAH’s include these types of notes in their service bulletins. In addition, there are several cases identified by air carriers that are not addressed by current notes.

The Service Information Working Group (SIWG) reviewed the notes that current exist in various DAH’s service bulletins. A summary of the existing notes is shown in Appendix A.

One DAH had been working with the Seattle ACO and Los Angeles ACO to develop new notes to give air carriers additional flexibility without the need to submit AMOC requests.

The Working Group felt there was merit in making the notes available, or a similar version of the notes, available for use by all DAHs. Each DAH will review the list of existing notes and incorporate applicable notes into their service bulletins.

In addition, this recommendation is similar to Task 2, Recommendation 1, Bullet 5 (T2, R1, B5), *Standard Practices*. Therefore, the solution to T2, R1, B5 will also result in providing flexibility as appropriate.

REGULATIONS AND GUIDANCE IDENTIFIED FOR REVIEW

Air Transport Association (ATA) Spec2200 “*Information Standards for Aviation Maintenance*”

S1000D – International Specification for Technical Publications

FAA Order 8900.1 (FAA Inspector’s Handbook)

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WORKING GROUP PROPOSAL TO ADDRESS THE RECOMMENDATION(S)/FINDING(S)

The proposal includes documenting general notes that give air carriers flexibility in accomplishing service bulletins. The general notes currently in use by various DAHs are shown in Appendix A. New general notes that have recently been developed are shown in Appendix B. Each DAH will then review the list of notes and incorporate [applicable notes or appropriate similar](#) notes into their service bulletins as appropriate.

The Working Group will continue to evaluate the benefit of additional general notes as the Working Group continues their work on other issues.

ALTERNATIVES CONSIDERED

The recommendation was very specific in stating service instructions should incorporate general notes providing air carriers latitude. Since some DAHs already included general notes, the proposal was easily agreed upon and will be relatively easy to implement. Therefore, alternatives were not considered.

IMPLEMENTATION PLAN

The existing notes will be documented in this paper. Each DAH will then evaluate the notes and incorporate [the applicable notes or appropriate similar](#) notes into their service bulletins. It is expected that each DAH develop and include guidance for use of the notes in their internal service bulletin preparation documentation. In addition, a high level recommendation will be included in ATA iSpec 2200 to recommend that general notes that provide flexibility be included in service bulletins. A Change Request will also be submitted the organization responsible for maintaining S1000D specification to recommend that general notes that provide flexibility be included in that specification document.

ASSUMPTIONS/CONSTRAINTS

This solution assumes that each DAH is willing to include general notes in their service bulletins. This solution also assumes each DAH has documented guidance for the preparation and content for service bulletins.

ISSUES FOR WORKING GROUP CONSIDERATION

Each DAH on the Working Group is governed by different regulatory authorities. Each DAH may have different standards and requirements which allow use of alternate parts, materials, and processes. Each DAH will need to work with their respective regulatory authority to obtain concurrence for including the notes that give air carriers flexibility.

ISSUES FOR ARC CONSIDERATION

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Each DAH on the Working Group is governed by different regulatory authorities. Each DAH may have different standards and requirements which allow use of alternate parts, materials, and processes. Each DAH will need to work with their respective regulatory authority to obtain concurrence for including the notes that give air carriers flexibility.

FINDING No. 1

The Team found that in some cases, service instructions were not sufficiently user-friendly and complete. These incomplete instructions resulted in widespread air carrier confusion because of the differences in the referenced service instructions and AD instructions. These deficiencies in service instructions have led to an increased demand for AMOCs and AD time extensions and/or exemptions. This has strained limited national aviation authority resources. The Team found that there is an opportunity for expanded use of the Fleet Team Emerging Issues (FTEI) process within the OEM industry. Use of this will ensure air carrier's review proposed mitigating actions and make user-friendly inputs to draft OEM service instructions.

RECOMMENDATION No. 1.

Flexibility as appropriate. When compatible with the corrective action intent of the AD, service instructions should incorporate general notes providing air carriers latitude to use (1) acceptable alternative materials and approved internal procedures without requesting an AMOC on each deviation or (2) where applicable, the option to use their engineering authority.

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APPENDIXES

Appendix A. General Notes Currently Used in Service Bulletins

The following notes are currently used, when applicable, in the Accomplishment Instructions of DAH service bulletins: The notes are normally located at the beginning of the Accomplishment Instructions. Notes that provide flexibility are identified in the page margin.

General Notes included in Airbus Service Bulletins

- **WARNING:** MAKE SURE THAT YOU OBEY ALL OF THE WARNINGS AND ALL THE CAUTIONS INCLUDED IN THE REFERENCED PROCEDURES.

- **CAUTION:** ALWAYS OBEY THE PRECAUTIONS THAT FOLLOW TO KEEP ELECTRICAL WIRING IN A SATISFACTORY CONDITION (ELECTRICALLY AND MECHANICALLY SERVICEABLE). WHEN YOU DO MAINTENANCE WORK, REPAIRS OR MODIFICATIONS, ALWAYS KEEP ELECTRICAL WIRING, COMPONENTS AND THE WORK AREA AS CLEAN AS POSSIBLE. TO DO THIS:
 - PUT PROTECTION, SUCH AS PLASTIC SHEETING, CLOTHS, ETC. AS NECESSARY ON WIRING AND COMPONENTS.
 - REGULARLY REMOVE ALL SHAVINGS, UNWANTED MATERIAL AND OTHER CONTAMINATION.
 - THESE PRECAUTIONS WILL DECREASE THE RISK OF CONTAMINATION AND DAMAGE TO THE ELECTRICAL WIRING INSTALLATION.

IF THERE IS CONTAMINATION, REFER TO ESPM 20-55-00.

General Notes included in Boeing Service Bulletins

- **WARNING:** IF ELECTRICAL POWER IS APPLIED TO THE AIRPLANE, MAKE SURE YOU OBEY ALL PRECAUTIONS WHILE YOU DO WORK. IF YOU DO NOT OBEY ALL PRECAUTIONS, DEATH OR INJURY TO PERSONS, AND DAMAGE TO THE AIRPLANE CAN OCCUR.

- **WARNING:** WHILE YOU DO WORK IN THE TAILCONE AREA MAKE SURE THAT YOU OBEY ALL SAFETY PRECAUTIONS. IF YOU DO NOT OBEY THE PRECAUTIONS, DEATH OR INJURY TO PERSONS CAN OCCUR.

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- **CAUTION:** KEEP THE WORK AREA, WIRES AND ELECTRICAL BUNDLES CLEAN OF METAL PARTICLES OR CONTAMINATION WHEN YOU USE TOOLS. UNWANTED MATERIAL, METAL PARTICLES OR CONTAMINATION CAUGHT IN WIRE BUNDLES CAN CAUSE SPARKS OR OTHER ELECTRICAL DAMAGE.
- **CAUTION:** ELECTRICALLY GROUND THE AIRPLANE. THIS WILL HELP TO PREVENT DAMAGE TO THE AIRPLANE OR EQUIPMENT.

Flexibility

- The instructions identified in Paragraph 3.B., Work Instructions and the Figure(s) give the recommended sequence of steps. The sequence of steps to do this service bulletin can be changed.
- Manual titles are referred to by acronyms. Refer to Paragraph 1.J., References, for definition of acronyms.

Flexibility

- Equivalent parts are listed in the AEPL, Drawing 7595071.

Flexibility

- Use the approved fastener and process material substitutions, in accordance with SRM Chapter 51.

Flexibility

- 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.

Flexibility

- 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 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.

Flexibility

- Unless shown differently these dimensions and tolerances are used:
 - Linear dimensions are in inches
 - Tolerance on linear dimensions, other than rivet and bolt edge margins, is plus or minus 0.03 inch
 - Tolerance on rivet and bolt edge margin is plus or minus 0.05 inch
 - Angular tolerance is plus or minus 2 degrees
 - Hole dimensions for standard solid rivets are in {*airplane model*} SRM, Chapter 51
 - Torque limits to tighten nuts and bolts are in {*airplane model*} SRM, Chapter 51

Flexibility

- 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.

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Flexibility

- Refer to the SWPM 20-10-01 as accepted wire installation procedures

Flexibility

- Refer to these SWPM chapters for applicable operations, as accepted procedures *{list applicable SWPM chapters}*
- Obey all of the warnings and cautions in the specified manual sections
- Refer to Appendix *{list applicable appendix letter}* for *{include a description of the applicable appendix}*
- A General Visual Inspection is defined as: A visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked.
- A Detailed Inspection is defined as: An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses, etc. may be necessary. Surface cleaning and elaborate procedures may be required

Flexibility

- These work instructions refer to methods, techniques, and practices described in other Boeing 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) can 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 Boeing document must be used.

Flexibility

- Refer to *{airplane model}* AMM 20-15-11 for on-airplane software installation maintenance practices and data transfer times, as accepted procedures.

Flexibility

- Refer to *{airplane model}* AMM 20-15-01 for off-airplane software installation maintenance practices and data transfer times, as accepted procedures

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General Notes included in Bombardier Service Bulletins

(1) Reference Information

REFERENCE	DESIGNATION
AMM 12-00-00-867-801	Standard Aircraft Configuration for Maintenance
AMM 20-21-00-910-801	Torquing of Threaded Fasteners
AMM 20-51-00-000-801	Removal of Cotter Pins
AMM 20-51-00-400-801	Installation of Cotter Pins
AMM 20-51-00-000-802	Removal of Lockwire
AMM 20-51-00-400-802	Installation of Lockwire
AMM 20-60-04-000-801	Removal of Polyester Film Decals
AMM 20-60-04-400-801	Installation of Polyester Film Decals
AMM 24-00-00-910-801	Electrical/Electronic Safety Precautions
AMM 24-00-00-910-802	Electrostatic Discharge Safety Precautions
AMM 24-00-00-861-802	Remove Electrical Power from the Aircraft
AMM 51-80-00-910-802	Bonding Surfaces Precautions
AMM 51-80-00-760-801	Electrical Bonding Test
ESPM 20-00-01	Safety Precautions
ESPM 20-10-00	Wire Identification
ESPM 20-11-00	Wire Stripping

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REFERENCE	DESIGNATION
ESPM 20-12-00	Wiring
ESPM 20-14-00	Transition Adapters and Boots
ESPM 20-16-00	Crimp Wire
ESPM 20-24-00	Connectors Accessories
ESPM 20-26-00	Electrical Connectors
ESPM 20-44-00	Splice
SRM 51-21-11-001-001	Corrosion Prevention Procedures
SRM 51-23-00-001-001	Pressure, Environmental, Fuel Tank and Firewall Sealing
SRM 51-25-06-001-001	Fluid -Resistant (FR) Epoxy Primer
SRM 51-25-16-001-001	Fluid-Resistant (FR) Polyurethane Topcoat
SRM 51-26-00-001-001	Cleaning
SRM 51-42-06-001-001	Solid Rivets
SRM 51-42-10-001-001	Blind Rivets

(2) Tolerance Information

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.

General Notes included in Embraer Service Bulletins

- This bulletin must be accomplished by Embraer personnel.
- For the purpose of this Service Bulletin, a General Visual Inspection (GVI) is: “A visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light and may require removal or opening of access panels or doors. Standards, ladders, or platforms may be required to gain proximity to the area being checked.”

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- For the purpose of this Service Bulletin, a Detailed Inspection (DI) is: “An intensive examination of a specific item, installation or assembly to detect damage, failure or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses, etc. may be necessary. Surface cleaning and elaborate access procedures may be required.”
- For the purpose of this Service Bulletin, a Special Detailed Inspection (SDI) is: “An intensive examination of a specific item, installation, or assembly to detect damage, failure or irregularity. The examination is likely to make extensive use of specialized Inspection Techniques and/or equipment. Intricate cleaning and substantial access or disassembly procedure may be required.”
- Obey all of the WARNINGS and CAUTIONS included in the referenced manuals and procedures.
- The manuals and other documents are referred to by means of acronyms or using a simplified form. Refer to section “1. I. REFERENCES” for a more complete definition.
- 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

Flexibility

General Notes included in Learjet Service Bulletins

- Complete the aircraft records in accordance with the regulatory requirements of your aircraft certification authority.

In addition, each DAH has standard Caution and Warning notes they include in Accomplishment Instructions. The Caution and Warning notes are included to provide guidance for safe maintenance practices.

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Appendix B. Recently agreed upon new General Notes

- The instructions in Paragraph 3.B., Work Instructions and the figures can include operation of tools or test equipment. Boeing Engineering Tool Drawings, the Illustrated Tool and Equipment Manual, and the Special Tool and Ground Handling Drawing Index 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.
- 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.
- 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.
- 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. The removed part can be discarded if a new or serviceable part is installed.
- 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 airplane systems.
- Some Boeing 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. Boeing Drawing 005W0900 contains more data.

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Appendix C. Training material available for use

**General Notes
in Service Bulletins**

Date

Background

- Some Design Approval Holders currently have general notes in service bulletins to give operators flexibility
- Airlines requested additional general notes
- AD Compliance Review Team recommended general notes be included

When compatible with the corrective action intent of the AD, service instructions should incorporate general notes providing air carriers latitude to use (1) acceptable alternative materials and approved internal procedures without requesting an AMOC on each deviation or (2) where applicable, the option to use their engineering authority

Action Taken

- A list of all general notes in use was created
- Feedback obtained from air carriers on potential new notes
- Suggestions on potential new notes was received from FAA ACO offices
- Notes to address suggested new notes developed and agreed upon
- Concurrence was received to begin using new notes
- All notes are available for inclusion in service bulletins
- Each DAH will determine which notes they choose to include in their service bulletins

List of Notes

- The instructions identified in Paragraph 3.B., Work Instructions and the Figure(s) give the recommended sequence of steps. The sequence of steps to do this service bulletin can be changed.
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List of Notes

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- Unless show differently these dimensions and tolerances are used:
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 - Tolerance on rivet and bolt edge margin is plus or minus 0.05 inch
 - Angular tolerance is plus or minus 2 degrees
 - Hole dimensions for standard solid rivets are in *{airplane model}* SRM, Chapter 51
 - Torque limits to tighten nuts and bolts are in *{airplane model}* SRM, Chapter 51

List of Notes

- Refer to the SWPM 20-10-01 as accepted wire installation procedures
- Refer to these SWPM chapters for applicable operations, as accepted procedures *{list applicable SWPM chapters}*
- These work instructions refer to procedures in other Boeing documents. When the words "refer to" are used and the operator has an accepted alternative procedure, the accepted alternative procedure can be used. When the words "in accordance with" are included in the instruction, the procedure in the Boeing document must be used

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List of Notes

- Refer to {airplane model} AMM 20-15-11 for on-airplane software installation maintenance practices and data transfer times, as accepted procedures.
- Refer to {airplane model} AMM 20-15-01 for off-airplane software installation maintenance practices and data transfer times, as accepted procedures
- Equivalent parts are listed in the AEPL, Drawing 7595071
- 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.

List of Notes

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(2) Tolerance Information

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XX in. (XX mm)	XX 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.

List of Notes

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List of Notes

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