

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

Primary Report and Recommendation	Compliance Review Team (Task 1) Recommendation No. 2, Bullet 2 Compliance Review Team (Task 2) Recommendation No. 1, Bullet 3 Maintain Airworthiness
Secondary Report and Recommendation	None.
Assigned Members	Mary Fox (Boeing) Eduardo Cerdeira (Embraer) Bob McCabe (FAA) Ed Carter (Boeing) Chris Armes (Bombardier)
Links to Other Working Groups	AD Implementation

WORKING GROUP REVIEW OF ISSUE/PROBLEM

Service instructions should be written and traceable to avoid situations where previous Airworthiness Directive (AD) compliance requirements are inadvertently undone or modified through normal air carrier routine maintenance practices.

Air carriers utilize service instructions such as service bulletins (SB) to initially comply with an AD. Subsequent maintenance is performed using a combination of the methods, techniques and practices prescribed in the Design Approval Holder’s (DAH) instructions for continued airworthiness and an operator’s own maintenance practices developed under section 43.13(c). If these procedures fail to take the AD mandated requirements into consideration, the operator could become out of compliance with the AD. To decrease the chances that this situation will occur, the DAH and air carrier procedures need to be updated to support AD mandated changes to ensure AD configuration and other requirements are taken into account during normal maintenance. DAH procedures/ICA should also clearly show the relationship to any AD or to the AD- mandated service instruction such as an SB.

REGULATIONS AND GUIDANCE IDENTIFIED FOR REVIEW

- FAA Order 8110.54A
- 14 CFR section 21.50(b)
- 14 CFR section 25.1529
- 14 CFR part 25 Appendix H
- 14 CFR section 21.99
- 14 CFR section 43.13

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

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

The Service Information Working Group (SIWG) proposes that in most cases, DAH compliance with the requirements of Title 14 Code of Federal Regulations A(CFR) sections 21.50(b) and 25.1529, part 25 Appendix H of 14 CFR part 25 and guidance given in FAA Order 8110.54A Instructions for Continued Airworthiness (ICA) or equivalent regulations and the subsequent use/adoption by air carriers under section 43.13(c) would preclude the inadvertent undoing of previous compliance with AD requirements during subsequent maintenance. Compliance with these requirements is also the foundation for maintaining airworthiness, but ICA development timing and the design change evaluation process must be strengthened to ensure an AD is not inadvertently undone in the future therefore; improvements to these aspects of the existing requirements are the focus of this proposal.

The ICA consists of documentation that provides methods, techniques and practices for accomplishing maintenance and preventative maintenance including inspections that are essential to the continued airworthiness of an aircraft. Per the cited requirements and guidance material, the DAH is tasked with ensuring that there is enough information in the ICA to maintain the continued airworthiness of the product. Regulatory authorities currently review the ICA for major design changes and make a determination of acceptability in meeting the requirements prior to granting certification. The DAH is also responsible for making changes to ICA available to anyone who is required to maintain compliance. A renewed awareness of this portion of the requirement is suggested to shorten the time difference between when AD-related service information is issued and when the updated ICA is available to the air carrier.

To avoid situations where previous AD compliance requirements are inadvertently undone or modified through normal air carrier routine maintenance practices, the Service Information Working group is proposing the following six improvements.

1. Increased review of service information documents by air carriers and DAH during SB development to evaluate the need for changes to ICA to eliminate the potential for undoing a mandated condition or configuration.
2. DAH providing awareness to the air carrier regarding availability of updated ICA documents.
3. DAH utilizing the flexibility provided in General Notes and referring to standard practices as much as possible in SB instructions that will be referenced in ADs.
4. DAH avoiding duplication of entire procedures from non-approved manuals in SBs by instead listing only the specific requirement which must be met in the SB and placing internal flags in those manuals to trace the requirement if compliance is or is expected to be required by an AD.
5. DAH creation of an SB to AD cross reference listing upon release of the AD.

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

6. DAH and air carriers support proposals submitted by other working groups.

More information on each of the six proposals is below.

1. Revisions to the Lead Airline Process will include guidance for the Lead Airline and DAH to consider ways the Service Bulletin could be undone during future maintenance and accounting for these situations during ICA and Service Instruction development. In most cases, this review will take place prior to the publication of the SB and well before adoption of the associated AD. This added review will provide the DAH with additional input to consider when evaluating the change and updating the supporting maintenance documentation in support of an SB which is expected to be the subject of an AD. The potential for undoing an AD mandated configuration should also be evaluated during other stages as well, including design development, the review/approval of the SB by DAH personnel and FAA, SB prototyping, the Notice of Proposed Rulemaking (NPRM) process by all reviewers, and AD compliance planning by airlines.

2. There are differing policies utilized by the DAH in the timing of ICA delivery to air carriers. For example, ICA may be delivered automatically by the DAH when the SB is issued or ICA may not be delivered until after it is requested by the air carrier. While the preference is to deliver ICA when the SB is issued, the recommendation of this team is for the DAH to make delivery policies known to air carriers so that each can ensure it has the ICA necessary to maintain the airplane upon incorporation/compliance with the AD. This notification can be in any format currently utilized by the DAH to communicate to its owners/operators on record.

Considering the changes listed above, in addition to compliance with the current requirements, which includes timely availability of ICA by the DAH, the SIWG proposes improvement in the SB evaluation process for affect on ICA.

3. Improvements proposed by the SIWG in other Summary Sheets to add flexibility by utilizing General Notes and referring to standard practices in Service Instructions will also help to prevent the inadvertent undoing of an AD.

The new General Notes pertaining to the use of alternate tools/parts, flexibility in access/close-up, and fastener substitution will be particularly helpful in maintaining compliance when using DAH procedures or the air carriers' own procedures during the initial accomplishment as well as future maintenance of the AD configuration. Implementation of new General Notes is being addressed in the Flexibility Summary Sheet.

New guidance on when to refer to standard practices and when to list specific requirements which must be met within the Service Bulletin will also prevent situations where previous modifications can be inadvertently undone through routine maintenance resulting in non-compliance. This type of SB/AD is referred to as "Class 2" in the AD Compliance Review Team (CRT) Reports but is also referred to as "high risk". Referring

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

to standard practices whenever possible will prevent conflicting requirements or configurations from being created, which will reduce the likelihood that follow-on maintenance would de-modify the AD configuration.

The following note has been recommended to be included in SBs. For details, see the SIWG Critical Task Differentiation Summary Sheet:

Note: The SB accomplishment instructions refer to methods, techniques, and practices described in other Design Approval Holder (DAH) 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 accepted 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 DAH document must be used.

4. Regarding traceability by the DAH, the SIWG proposes that ICA procedures which have requirements duplicated in the AD-related Service Bulletin or have been pointed to with “in accordance with” language should be flagged in the appropriate ICA document by the DAH in a manner which will identify them as procedures/conditions/configurations which are mandated by AD and should not be changed without proper coordination which could include obtaining a global AMOC.

Per the new guidance referenced in item 3 above, if a specific requirement such as a torque value must be met, and instructions for accomplishing that requirement reside in another document such as the Aircraft Maintenance Manual (AMM), the requirement that must be met must be included in the SB and the non-approved manual identified as an accepted method of obtaining the requirement. This will allow the air carrier the latitude to either use their own accepted procedure or use the procedure provided by the DAH to obtain the requirement while at the same time preventing the need to duplicate the entire procedure from the DAH document in the SB. This process change will decrease the chance that the DAH procedure and SB instructions differ which will decrease the number of high risk SBs. It will be necessary to create an internal authoring flag against the requirement in the DAH procedure to ensure that it does not become out of sync with the requirement listed in the SB due to either a change in the SB itself or a change in the DAH document. This step is to make sure that both the SB and the DAH document always have the identical requirement listed.

It is recommended that this flag be visible to the maintenance documentation authors and should not alter the output to the air carrier. The team believes that this process will ensure the DAH procedures remain consistent with the SB/AD and vice versa while not placing any additional burden on the air carrier’s maintenance personnel.

The flag should list the SB and AD number once it becomes available or contain verbiage similar to the following:

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

Note: This procedure is used for maintaining compliance with SB XYZ which is subject to/mandated by an AD. Do not alter this procedure without proper coordination.

“Proper coordination” in context of this note will need to include guidance on when an AMOC is required and when it is not. Each DAH will need to define the coordination which must take place upon implementation.

The AD Implementation Working Group has developed a proposal as part of the solution to T1-R3-B2 and T2-R11-B1 for how the air carrier could enhance processes to alert the maintenance personnel of any ADs affecting the task being worked and notifications which air carriers could add to their manuals to ensure they do not become out of sync with the SB. Therefore, this summary sheet only addresses DAH activity in this area.

5. The SIWG proposes the creation of an SB-to-AD cross reference listing in the front of DAH documents to help air carriers identify which service instructions are related to ADs. This is an additional method of traceability which should help support the AD Implementation Working Group effort. See example below:

AIRCRAFT MAINTENANCE MANUAL

Number	Incorporated	Started/ Completed	ATA	Subject
MD80-11-044	No Effect		-	PLACARDS AND MARKINGS - General - Replace Flap Limit Speed Nameplate and Install Modification Nameplate. (Incorp. of KCN K1078).
MD80-11-045	No Effect		-	PLACARDS AND MARKINGS - Placard/Marking - General - Replace Upper Electrical Power Center (EPC) Namestrip.
MD80-11-048	No Effect		-	PLACARDS AND MARKINGS - Interior Placards/Markings - Install Alternate Maximum Takeoff Weight Placard and Holder
MD80-11-050	No Effect		-	PLACARDS AND MARKINGS - Interiors Placards/Markings - Install Alternate Maximum Takeoff Weight Placard and Holder
A MD80-99A003 AD 98-601	AUG 01/2009	S	SECTION 11-00	TEST AD

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

A listing similar to the example provided is recommended to be added to all DAH maintenance documents where feasible utilizing the existing SB listing section of those documents.

6. The Service Information Working Group also recognizes other improvements being proposed by other Working groups. The SIWG anticipates that the proposals in this Summary Sheet and the proposals created by the other Working Groups will significantly reduce the potential for an AD-mandated configuration or requirements being undone during routine maintenance. The other improvements proposed by the other Working groups include:

- T1-R3-B2 (Prevent Class 2 ADs from Being Undone During Normal Maintenance Actions) and T2-R11-B1 (Physical Marking of AD Installations) proposed by the AD Implementation Working Group
- T2-R4-B5 (Identification of Overlapping or Conflicting ADs) proposed by the AD Development Working Group

ALTERNATIVES CONSIDERED

Other solutions to this basic issue have been considered and are outlined below.

1. Consideration was given to the DAH flagging of all procedures affected by an AD, specifically the referred to procedures and not filtering for only those labeled with “In Accordance with” language.

While placing a flag on all procedures provides maximum awareness of an AD configuration, input from several air carriers indicated that too many flags in DAH maintenance documentation can be counterproductive. If there is an abundance of flags, the importance of each flag is diluted. This team has concluded that filtering for critical aspects of the AD-mandated SB (as outlined in the Critical Task Differentiation Summary sheet) by the DAH and flagging only those items which must be accomplished without deviation is a more effective approach and will provide adequate awareness of AD-mandated procedures. Procedures that are referred to in AD-related SBs should not require the same level of control as those procedures for which the requirements have been duplicated in the SB or those which the SB states the air carrier must follow explicitly using the “in accordance with” language due to the flexibility that the “refer to...as an accepted procedure” language is meant to provide.

2. Flagging DAH maintenance procedures in a manner which would be visible in the output (i.e., the digital data or paper copy delivered to the air carrier) of the DAH maintenance documents - including the RC in maintenance document suggestion.

SUMMARY SHEET

Airworthiness Directive Implementation Aviation Rulemaking Committee

Service Information Working Group

Much discussion was centered on how to flag the DAH procedures that must be accomplished without deviation in context of the AD configuration. The team's first inclination was to put a flag in the form of a note in the published document; however, when taking into account all the perspectives represented on the SIWG, it became apparent that this could create more problems than it solves. The advantage of flagging the procedures in this manner is that everyone has visibility of what the DAH has determined satisfies the AD requirements for follow-on maintenance (e.g., configuration checks). The drawbacks of doing this fall mostly on the air carrier and are listed below:

- Flagging a routine procedure that is used for many purposes other than compliance with an AD leaves it up to the maintenance personnel to find out why the flag is present and if it applies in this instance, potentially delaying the completion of maintenance
- Too many different regulatory authority requirements makes it difficult for the DAH to provide one concise note to cover all of them and difficult for the air carrier to determine which portion of the note applies. Ultimately, the civil aviation authority must reference the appropriate action to be taken in its AD.
- It only includes the DAH documentation but does not consider that an air carrier may have an AMOC to deviate from this procedure
- For some DAH authoring systems, it requires a released revision to be published to provide awareness (internal flags can be included at anytime in these systems)

IMPLEMENTATION PLAN

It is anticipated that the solutions outlined in the working group proposal (above) will be included in the DAH Best Practices Advisory Circular to be published in support of the June 30, 2011, implementation date. Each DAH will be responsible for developing processes and training the affected personnel on how they plan to adopt any of the Best Practices recommended.

ASSUMPTIONS/CONSTRAINTS

A large portion of the proposed solutions outlined in this summary sheet are dependent upon the adoption of solutions outlined in other summary sheets such as Flexibility and Critical Task Differentiation being accepted as currently proposed. Changes to these areas could affect implementation of the solutions outlined in this summary sheet.

Implementation of the proposed solutions outlined in this summary sheet will be at the discretion of each DAH to the same extent as with any other advisory circular.

It is assumed that there are no new regulations being created as part of the AD ARC which will change the requirements for ICA/maintenance documentation development or delivery timing

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

from what they are today. If there are changes to the current regulations or additional regulations are created, the proposed solutions outlined in this summary sheet may need to be revisited.

ISSUES FOR WORKING GROUP CONSIDERATION

A final review of all proposed solutions will need to be conducted in order to determine if the proposals of this team are still appropriate and sufficient. It is anticipated that a separate summary sheet will be created to address the Airworthiness Limitation idea and that solution could affect aspects of what is outlined in this summary sheet.

The proposed solutions outlined in this summary sheet are on a go-forward basis. These new processes would begin after implementation so some of the safeguards and flexibility will not be present for past AD-related maintenance instructions. It may be necessary to determine how requests for information on AD-related maintenance instructions for ADs issued prior to implementation will be handled.

ISSUES FOR ARC CONSIDERATION

A final review of all proposed solutions will need to be conducted in order to determine if the proposals of this team are still appropriate and sufficient. It is anticipated that a separate summary sheet will be created to address the Airworthiness Limitation idea and that solution could affect aspects of what is outlined in this summary sheet.

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

Task 1 Finding No. 2

In the current method of writing SBs, the accomplishment instructions of an SB do not distinguish between instructions that satisfy the safety intent of the AD and instructions that merely serve to complete the overall work package. This contributed to unnecessary questions of compliance and requests for AMOCs.

AD 2006–15–15 (a class 2 AD as defined in this report) specifies wire bundle routing and modifications that were very prescriptive subsets of SWPM practices. As a result, it is possible that in subsequent maintenance, an air carrier or repair station maintenance technician could de-modify some or all of the installation and render it noncompliant with the AD through the use of the standard practices defined in the SWPM, if he or she were unaware the wiring was an AD-required installation.

The Lead Airline Process contributed to the development of both SB revisions proposed in the rulemaking process culminating with AD 2006–15–15. However, the level of specificity of SB instructions addressed in that process did not in all cases match the level of detail that arose during the audit. In addition, not all of the differences in the configurations of the applicable airplanes were addressed during the Lead Airline Process. Consequently, the SB instructions did not prevent questions of compliance or installations that were noncompliant.

Several air carriers implemented the SB before the AD was issued in some airplanes. At least one air carrier interviewed did not recognize the importance of the prescriptive criteria in the AD and did not revisit and reevaluate their earlier work for compliance with the prescriptive requirements in the AD.

Recommendation No. 2

The OEM and the Air Transport Association of America, Inc. (ATA), as appropriate, should:

Bullet 2

Avoid drafting class 2 SBs .

Task 2 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 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.

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

Recommendation No. 1

The Team acknowledges the benefits of current AD-friendly service bulletin improvements, but recommends more focus on user-friendly improvements in service instructions as follows:

Bullet 3

Maintaining airworthiness. Service instructions should be written and traceable to avoid situations where previous AD compliance requirements are inadvertently undone or modified through normal air carrier routine maintenance practices. (Refer to class 2 issues in section 2.2.5, finding and recommendation No. 11, for additional information regarding this issue.)

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

APPENDIXES

None