U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Part 91 Approved Inspection Programs

Date: 4/5/17 **AC No:** 91-90
Initiated by: AFS-300 **Change:**

1 PURPOSE. This advisory circular (AC) prescribes the procedures to develop and submit aircraft owner- and operator-specific inspection programs in accordance with an inspection program selected under the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 91, § 91.409(f)(4), and satisfies the requirements of § 91.409(g) for review and approval by the Federal Aviation Administration (FAA). This AC is not mandatory and does not constitute a regulation. This AC describes an acceptable means, but not the only means, to develop an Approved Inspection Program (AIP). However, if you use the means described in the AC, you must follow it in all important respects.

2 AUDIENCE. Operators wishing to establish or revise an AIP under the provisions of § 91.409(f)(4) and FAA personnel (i.e., Airworthiness inspectors and principal maintenance inspectors (PMI)) tasked with the review and oversight of these programs.

3 WHERE YOU CAN FIND THIS AC. You can find this AC on the FAA's website at http://www.faa.gov/regulations_policies/advisory_circulars.

4 GENERAL. There are many types of operators that may elect to use an AIP under the provisions of § 91.409(f)(4). These include large airplanes and certain turbine-powered aircraft operated under part 91 and 14 CFR part 137 as well as certain experimental aircraft as mandated by their operating limitations. Additionally, fractional owners under part 91 subpart K (part 91K) must also establish an inspection program under § 91.1109(b)(1) through (5), of which a § 91.1109(b)(1) program is for all intents and purposes identical to a program developed under § 91.409(f)(4). While the enclosed guidance may be helpful for the development of all these types of programs, the purpose of this AC is only to address programs developed for the purpose of meeting § 91.409(f)(4).

4.1 Terminology. We generally refer to an inspection program approved under 14 CFR part 135, § 135.419 as an Approved Aircraft Inspection Program (AAIP), and an inspection program approved under part 91 as an Approved Inspection Program (AIP), to help keep the two programs separate and distinguishable. So the term "AAIP" should be used when referring to an inspection program approved under § 135.419 and the term "AIP" should be used when referring to a program approved under § 91.409(f)(4). This is based on the wording used in § 91.409(f)(4) and (g): "inspection program… approved by the administrator". Therefore, we refer to these programs as "Approved Inspection Programs" (hereafter referred to as an "AIP" program for simplicity). Note that part 135

9 or less operators are not typically required to have an AAIP and may be operating with an inspection program under § 91.409, depending on the operation.

4.2 Custom Programs. These programs are custom programs designed specifically for the aircraft they are developed for, though they typically use the manufacturer's program as the basis for the program. These programs are not exclusive to only inspection items defined by the airframe manufacturer, but must also include inspection items from the engines, propellers, and all other equipment, components and appliances not made by the aircraft manufacturer. So these inspection programs should include items which may not be included in the aircraft manufacturer's program, ensuring the complete aircraft is inspected. This type of program can be used when the owner/operator (hereafter simply referred to as the "operator") desires more flexibility due to the type of operation (low utilization, unique operator requirements, etc.). Operators can also use this type of program in cases where the manufacturer did not provide an inspection program that accommodated the configuration of the aircraft or the intended operational environment, such as extreme heat, high salt water, or abnormally long or short flights. An AIP allows each operator to develop a program tailored to its particular needs to satisfy aircraft inspection requirements. A well-developed and monitored AIP should result in a more effective inspection program.

4.3 Program Content. The AIP program should be based on the most recently published version of the manufacturer's recommended inspection program or Maintenance Planning Document (MPD) where applicable. A general exception to this would be cases where the manufacturer's program is so old (such as vintage aircraft that are no longer produced or supported) that a program does not exist or a completely new program is needed to bring the aircraft up to more desirable modern standards. Additionally, the configuration of the aircraft and any additional equipment, modifications, or repairs to the aircraft not included in the manufacturer's program must also be considered when developing an AIP. An operator must ensure that the AIP development includes inspection of all systems, including the engines, propellers, appliances, survival equipment, and emergency equipment installed on the aircraft. The advantage of an AIP is that it becomes the single source for inspection data, regardless of the unique equipment and operational considerations for the given aircraft. Program content is further discussed in Section 4.

Note 1: Manufacturers will typically provide recommended "maintenance" tasks as well as inspection tasks in the section of their maintenance manuals describing their inspection program. This is especially true of Maintenance Review Board Reports (MRBR) and MPDs. While manufacturers are not prohibited from incorporating the maintenance tasks, these do not fall under the scope of the inspection program and therefore it is not necessary for the operator to include them as part of an AIP. However, if scheduled maintenance items are included in the AIP, they become mandatory and must be accomplished.

Note 2: For experimental aircraft, the program may be based off a current manufacturer's recommended program, a current military program (preferably the Technical Order, North Atlantic Treaty Organization (NATO) recognized version,

or developed by the service organization), or based on a program previously approved for the same make/model. However, prior FAA approval of an inspection program does not guarantee an automatic approval for a similar make/model because inspection programs are aircraft specific. If no current program exists on which to base the program, consult with the local FAA certificate-holding district office (CHDO) on the best course of action prior to starting the development process.

4.4 Instructions for Continued Airworthiness (ICA). When developing instructions for the performance of inspections, it is important to remember that an operator is required to use methods, techniques, and practices prescribed in the current manufacturer's maintenance manuals (other methods, techniques, and practices can be used if acceptable to the FAA) when performing maintenance (which includes inspection). These are the ICAs prepared by the manufacturer (and other entities as described in § 21.50) and provided in the maintenance manual(s). This information can be directly incorporated into the program as it relates to performance of specific inspection items or referenced; however, all referenced material must be readily accessible to the persons performing the inspections.

4.5 Bridging Document. If the aircraft is being transitioned from another type of inspection program, an operator must provide the necessary information required by § 91.417 and show how the inspection program has been appropriately bridged from the current inspection program to the AIP, in accordance with § 91.409(h).

4.6 Constraints. The following items do not constitute an acceptable AIP.

4.6.1 Aircraft Maintenance/Inspection Tracking Programs. Submission of commercially available aircraft maintenance/inspection tracking programs does not constitute an AIP. Some manufacturers and third parties currently provide these programs which aid in the scheduling of tracked items. While this can be very useful, these software programs do not meet the requirements for an FAA-approved AIP which must be prepared as described in this AC. The data gleaned from these tracking programs may be used to support the development of an AIP, but a tracking system in-and-of itself is not a defined inspection program. The FAA will not approve these software programs as an AIP.

4.6.2 Incomplete Submissions. Approving individual piecemeal inspection segments as an AIP, such as an avionics inspection segment while an operator also performs the manufacturer's recommended program under § 91.409(f)(3), is not permitted. There cannot be two different types of programs associated with the same aircraft. The manufacturer's program can be adopted in whole or part, but to be acceptable, the complete AIP must be a comprehensive all-encompassing program that covers the entire aircraft.

4.6.3 MRBRs and MPDs. A manufacturer's MRBR or MPD will not be approved as an AIP. While these documents provide many of the "inspection elements" that would be included in the AIP, they do not provide the other required elements such as instructions for implementation and administration of the program. Additionally it would not have any inspection elements for aftermarket equipment and modifications that are not covered under the manufacturer's MPD or MRBR. These must be developed and included by the operator as described in this AC.

5 AIP PROGRAM SUBMISSION. The following describes the requirements for the submission of an AIP for the review and approval by the FAA.

5.1 Elements of an AIP. The program must be in writing and contain the following:

5.1.1 Inspection Tasks. The program must detail the inspection tasks for the parts and areas requiring inspection specific to the configuration of the aircraft and required functional and operational checks. In addition the intervals at which the inspections must be performed, expressed in terms of time in service, calendar time, cycles (number of system operations), or combination of these, must be identified. For more information about setting task intervals, see Appendix A. At a minimum, the following areas must be included:

- Airframe, engines, propellers, and rotors;
- Appliances;
- Survival and emergency equipment;
- Auxiliary power units;
- Passenger convenience items and entertainment equipment; and
- Avionics equipment.

Note 1: The avionics and instrument systems are not always installed by the aircraft manufacturer and may not be included in their recommended inspection program. The avionics and instrument system inspections should be based on the equipment manufacturer's recommendations or instructions, and must be included in the AIP. Also, consider including any inspections required by regulations, such as 14 CFR part 43 appendices E and F.

Note 2: For experimental aircraft with operable ejection seats or other military related systems, the inspection program must contain inspection tasks recommended by the current manufacturer or military program. However, inspection tasks for aircraft systems that have been removed or deactivated may be excluded.

5.1.2 Revision and Control Processes. The program must have a revision and control process comparable to other approved manuals (i.e., list of effective pages or revision control pages). The program should also identify the specific revision number and date, as applicable.

5.1.3 Scheduling Contact. The program must identify the person responsible for scheduling the inspections required by the program.

5.1.4 Additional FAA Approvals. The AIP must not override or alter time intervals set through other regulatory requirements such as the test and inspections of the emergency locator transmitter (ELT), altimeter/altitude reporting systems, air traffic control (ATC) transponders, and repetitive airworthiness directive (AD) compliance. However, these items can be included in the AIP, unmodified, if desired. While there are approved methods for modifying these items per the regulations, describing that process and the necessary provisions, is outside the scope of this AC. Specifically, the program must not allow modifications to ELT tests, altimeter/altitude reporting system tests, ATC transponder tests, AD compliance times, airworthy limitation items (ALI), life-limited part retirement times, certification maintenance requirements (CMR) (unless specifically allowed and designated by the CMR document), structural sampling periods imposed by the Maintenance Review Board (MRB), MRBR intervals for failure effect categories 5 and 8, and critical design configuration control limitations (CDCCL) without a separate supporting FAA approval prior to being included in the AIP.

5.1.5 Detailed Instructions. The AIP program must contain the specific step-by-step instructions for conducting the inspections. However, the instructions can be included in a couple of ways. An operator can write their own step-by-step procedures (typically in the form of work-cards). If they develop their own procedures, they must submit those for review and approval as part of their AIP program. Alternately, the AIP can just reference the instructions already developed by the manufacturer. Either approach is acceptable. While the step-by-step instructions are indeed a part of the inspection program (by rule), they can be "incorporated-by-reference" as long as nothing is being changed from the manufacturer's defined procedure. For example, the program could identify a Phase 3 inspection and call out for it to be accomplished every 800 hours. In this instance, refer to the specific manufacturer's maintenance manual for the inspection instructions and the actual steps involved (usually in the form of some type of worksheet or checklist). In addition, how those incorporated-by-reference instructions are revised can be accomplished in a couple of different ways, as described below.

5.1.5.1 By default, instructions incorporated by reference are "frozen-in-time" as of the date the AIP is submitted for approval. In this method, the AIP must reference the specific revision of the manufacturer's instructions being referenced. The use of a subsequent revision to the referenced instructions would need to be separately approved by the FAA through a revision to the AIP. An operator would need to ensure that they retain access to the specified version of the instructions so they could provide those to maintenance providers as needed. They would also need to ensure the AIP procedures included providing instructions to maintenance providers to use the approved version of the maintenance instructions which may not necessarily be the most recently published by the manufacturer.

5.1.5.2 The other option available to operators is referencing these instructions in an "as revised" state. Meaning: if the manufacturer updates their procedures for

the performance of the referenced inspection, the AIP owner can follow the new instructions without needing further review and approval by the FAA. The logic behind this is, while the entire program (to include the instructions) is technically "FAA Approved" and therefore subject to review, the FAA will almost always accept an unchanged manufacturer's procedure without further review. Therefore, the use of this option would save both an operator and the FAA a lot of needless administrative effort if an operator always intends to follow the latest manufacturer's instructions. The FAA will typically find that following the latest version of the manufacturer's instructions to be in the best interest of safety. This might also be desirable when an operator has multiple aircraft on an AIP and wants to keep the inspections "in-sync" rather than possibly having slightly different programs for each one (due to the differences in the manufacturer's programs at the various times of submission). Note, however, this option might not be appropriate if there was some logical reason why the manufacturer's process would be inadequate given an operator's specific circumstances or when the manufacturer's instructions for a particular inspection have been modified for use in the AIP.

5.1.5.3 This can also be "mixed-and-matched", meaning that some instructions can be "as revised" where others are not, as long as this is clearly identified in the AIP. Whichever method is used, it must be clearly defined and described in the description of the AIP and clearly identified whenever the instructions are being referenced.

Note 1: Only the inspection procedures can be referenced. The specific time intervals are always defined and approved as part of the inspection program and cannot be changed without submitting an AIP revision to the FAA.

Note 2: If any referenced inspection procedures are not published in English, the applicant must submit an English translation of the procedures. It is to the applicant's benefit to ensure the translation is performed by a technically competent individual familiar with aviation terms and practices.

5.1.6 Inspection Windows (Optional). Inspections windows represent a built-in inspection tolerance in an inspection, which allows for maintenance scheduling flexibility.

Note: The term "inspection window" used here is a generic term that is used by some, but not all, manufacturers. Any type of program that the manufacturer has defined for this purpose can be used as a basis of comparison for the purposes of this policy.

5.1.6.1 **Restrictions.** Inspection windows cannot be used to prematurely put an aircraft back in service prior to an inspection being fully completed. When starting a part of an inspection (e.g., opening panels), the inspection must be completed before placing the aircraft back in service. Do not use inspection

windows as a means of performing piecemeal inspections, nor should they become permanent time extensions. Using inspection windows should also not significantly affect the target inspection interval (see paragraph 5.1.6.3, Limits of Inspection Window Intervals). Also, inspection windows must not allow modification of the inspection intervals to the items listed in paragraph 5.1.4.

5.1.6.2 Manufacturer's Procedures. When the AIP inspection intervals are the same as the airframe, engine, propeller, rotor, or appliance manufacturer's inspection program intervals, an operator may adopt the manufacturer's published inspection window procedures (if provided) and include them in their AIP without further justification. Additionally an operator may modify the manufacturer's inspection window intervals provided they show justification to the FAA. However, operators should exercise care that non-extendable items (such as an AD without an alternate method of compliance (AMOC)) have not been built into the program, or are identified and excluded from the windows. Operators can use more restrictive criteria (shorter duration, etc.) if desired without additional justification.

5.1.6.3 Limits of Inspection Window Intervals. When the AIP inspection intervals are significantly different from the aircraft, engine, propeller, or component manufacturer's inspection intervals, an operator may still include scheduling procedures to allow for inspection windows. However, if the inspection windows are based on percentage of the target inspection interval (e.g., 10 percent), ensure that the inspection window does not adversely affect the integrity of the inspection by inducing an even larger interval between inspections than intended.

5.2 Typical Inspection Program Structure. Inspection programs should typically contain the following elements:

5.2.1 Identification Information. Title or cover page identifying the specific aircraft by make, model, and serial number as well as the operator's identifying information.

5.2.2 Revision Control Information. Document revision control information (such as a list of effective pages) and procedures for revising the program. This should explain that the program is FAA approved and any changes need to be submitted to the FAA. If using the "as-revised" instructions from the manufacturer as described earlier, this is also where that should be spelled out.

5.2.3 Inspection Program Details. Description of the program to include at least the following information:

- Administrative and implementation information, including the identity of the person responsible for managing the program;
- A well-defined explanation of the components of the program, including the general structure of the program (e.g., phases, A, B, C checks, etc.), what documents are included by reference, etc.;

- The provisions and process for handling short-term escalations, if applicable; and
- Any other pertinent information that a maintenance provider may need to know, such as personnel experience or training requirements.

5.2.4 Inspection Items and Intervals. The list of inspection items and their associated intervals, expressed in terms of time in service, calendar time, cycles (number of system operations), or combination of these, at which they are to be inspected. In addition, the list should also include a reference to where the instructions for performing the specific inspection can be found.

5.2.5 Inspection Procedure Cards. Written inspection procedure cards, if developing custom inspection procedures in lieu of using the manufacturer's provided instructions. Otherwise a reference to where the manufacturer's instructions can be found for each inspection (e.g., AMM, chapter 10, section 2).

5.3 Other Information Required for the Approval Process. Operators should provide the following supplemental information to the FAA at the time they submit the AIP for review. This information does not need to be a part of the final inspection program document, but should be submitted to assist in the approval process. For operators submitting multiple programs for similar aircraft, it may not be necessary to re-submit identical information which was already provided at an earlier time to the same FAA office, as long as the information is still applicable to the program being submitted. However, if a significant amount of time has lapsed, and the FAA office no longer has the information available, re-submission of the following information may be required.

1. Copy of the most recently published version of the manufacturer's inspection program (or MPD as applicable) if the FAA office indicates that they do not already have access (if the FAA office has, or can get, access to the ICAs then the operator need not supply a copy).
2. Copy of the FAA-approved Airworthiness Limitations Section (ALS) from the manufacturer's manual.
3. A document that highlights the differences between the current inspection program and the proposed AIP program. If the aircraft is being transitioned from another type of inspection program, an operator must provide the necessary information required by § 91.417 and show how the inspection program has been appropriately bridged from the current inspection program to the AIP, in accordance with § 91.409(h). The time in service, calendar times, or cycles of operation accumulated under the previous program must be applied in determining inspection due times under the new program.
4. Aircraft maintenance and inspection records necessary to validate or substantiate any portion of the program, including data justifying any task intervals.

Note 1: Record retention, per parts 43 and 91, typically require that most maintenance records only be retained for one year or until the work is superseded.

However, if an operator is only complying with these minimal record retention requirements it may not be possible for them to supply sufficient evidence to justify a proposed task interval greater than the manufacturer's interval.

5. Status of applicable ADs (to verify that ADs were considered when developing the program).
6. A listing of the major repairs and alterations performed to the aircraft and an analysis of how they would impact the proposed inspection program (or that it does not).

Note 2: Similar to ADs, ICA-driven inspections from major repairs and/or alterations can be incorporated into the AIP (the greatly preferred method), or maintained in a separate listing. But if maintained as a separate list, it must be referenced in the program and the operator must be able to produce a list of associated intervals identified by ICA on request to maintenance providers or the FAA. In addition, the listing of ICA inspections should clearly identify the intervals at which they are performed. These inspections, which are referenced in a separate list, are still a part of the AIP program; however, additions to the list for future modifications do not require subsequent re-approval of the program as the data associated with major repairs and alterations is already FAA approved (in the same way that changes to ADs or issuances of new ADs do not require revision, review, and re-approval of the program). However, the AIP should include a procedure for the operator to notify the managing FAA office when changes to the list are made. In addition, any new alterations need to be reviewed for any impact on other pre-existing inspections. If revisions to other inspections are necessary (or desired), then the AIP will need to be revised and the revision submitted to the managing office for approval.

7. Records of manufacturer's Service Bulletins (SB) and Service Letters (SL) that have been incorporated (if applicable to inspection tasks or items being extended).
8. Malfunction and Defect Reports (M&D) or Service Difficulty Reports (SDR) on the subject aircraft (if applicable to inspection tasks or items being extended).
9. Description of the aircraft's major event history, such as accident/incident history, major corrosion history, and other major damage that may have occurred.
10. A copy of the current aircraft equipment list to ensure inspection items specific to any installed standard or optional equipment has been included.
11. Any other relevant data (as described herein) necessary to substantiate task intervals beyond the manufacturer's recommended time frames.

6 REVISIONS TO PREVIOUSLY APPROVED PROGRAMS. It is an operator's responsibility to provide the FAA with information to justify all aspects of the proposed

AIP revision. The FAA will process revisions to the AIP program in a similar manner as the initial program reviews.

6.1 Changes to the Manufacturer's Program. If a manufacturer extends its recommended interval for a given inspection, an operator may request approval to use the new interval by submitting a revision to their AIP to the FAA. The manufacturer's documented recommendation must accompany the request. Additionally, there are cases when the FAA may not automatically approve a task interval adjustment as recommended by the manufacturer. The FAA will take into account the individual operator's aircraft usage and experience.

6.2 Operating Experience. An operator may request task interval adjustments based on past operating experience of their aircraft or other justification they feel is relevant. The FAA will review the justification and will approve the changes, recommend additions or modifications, or reject the operator's proposal based on the information submitted.

6.3 Restrictions. Amendments have the same restrictions as specified in the original program approval process. Therefore modifications to such things as retirement times of life-limited parts, ALIs, and/or those intervals designated by ADs are not allowed without separate approval by the FAA.

6.4 Scope of Review. The FAA will review revisions and amendments to approved programs only for the new or revised material provided. It is not expected that the entire program be re-reviewed for approval, nor should it be required to re-justify any existing approved intervals or processes. However, if there are safety concerns identified with the currently approved program, then the operator may be required to revise their AIP in accordance with § 91.415 as discussed below.

6.5 FAA-Initiated Revisions. The FAA can mandate a program revision under certain circumstances. Section 91.415(a) states that whenever the Administrator finds that revisions to an AIP under § 91.409(f)(4) are necessary for the continued adequacy of the program, the owner or operator must, after notification by the Administrator, make any changes in the program found to be necessary by the Administrator. Section 91.415 also describes the appeal process if an operator feels the revision is not warranted.

7 COMMENTS INVITED. Please direct proposed changes to this AC to:

Federal Aviation Administration
Flight Standards Service
Aircraft Maintenance Division, AFS-300
800 Independence Ave. SW
Washington, DC 20591

John Barbagallo
Deputy Director, Flight Standards Service

APPENDIX A. TASK INTERVALS

A.1 Setting Task Intervals. If the AIP is for an aircraft that has a published manufacturer's program, any request for intervals greater than the manufacturer's defined intervals must be submitted with sufficient justification to support that request. When considering intervals greater than the manufacturer's inspection intervals as part of an AIP, an operator must provide information to the FAA of how it provides for an acceptable level of safety as compared to the most recently published Original Equipment Manufacturer (OEM) inspection program (as of the date the AIP is submitted for approval). The following describes the information to be considered when defining task intervals for an AIP.

Note: While this is not an exhaustive list, use this as the basis for what needs to be accomplished and provided to extend inspection intervals as part of an AIP.

A.2 Discussion. Title 14 CFR part 43, § 43.13(a) requires each person performing maintenance, alteration, or preventive maintenance on an aircraft, engine, propeller, or appliance to use the methods, techniques, and practices prescribed in the current manufacturer's maintenance manual or Instructions for Continued Airworthiness (ICA) prepared by its manufacturer, or other methods, techniques, and practices acceptable to the Administrator. Since the early 1980s, design approval holders (DAH) have been required to develop ICAs that are acceptable to the FAA. Inspection programs are one piece of those ICAs. They can be published in the manufacturer's maintenance manual as a complete program or published as a separate document as a guide (such as a Maintenance Planning Document (MPD)) for establishing initial intervals. In any case, these documents establish the initial criteria that ensure, by design, the continued airworthiness of the aircraft.

A.2.1 Task Intervals. For new aircraft type designs, a manufacturer's program's initial inspection intervals are developed in the absence of in-service experience (for the aircraft as a whole; individual components will vary). As a result, the tendency is to be conservative in the decisionmaking process when establishing initial intervals. For in-service aircraft, differences in operating environments and methods of operating can have a significant impact in the development of specific types of discrepancies, which affect the aircraft airworthiness. Manufacturers might not have anticipated or accounted for these conditions in the initial analysis by the manufacturer. Therefore, as service experience is accumulated, it may be desirable to adjust task intervals (thresholds/repeats) to reflect the results of actual in-service data. This can result in the intervals being longer or shorter depending on what the in-service results are. If, through operating experience, it is found that initial intervals are not adequate (usually found through unpredicted and/or systemic operational failures), corrections can be made. If an issue is identified fleet-wide, a manufacturer may revise its inspection program. In extreme cases, when an unsafe condition arises the FAA may also issue an Airworthiness Directive (AD). Operators that have unique operating conditions, specific evidence or experience, or other relevant factors can use that information to develop an AIP to suit their individual operating environments and situations.

A.3 Substantiating Information. Task intervals can be optimized based on the results of in-service experience. Likewise, a task may also be deleted, but only when it is determined that it is specific to equipment or systems that are no longer applicable due to alterations or customizations to the aircraft. The following types of data can be used to substantiate the interval of an inspection or specific items within a larger inspection.

Note: In the absence of adequate justification or where substantiating information is not available, the FAA may, at their discretion, allow an interval slightly larger than the manufacturer's depending on the specific circumstances (such as a small interval adjustment of an item to align with other scheduled items). Further adjustment might be allowed once the task has been repeated and sufficient data is available to make an adequate determination of the appropriateness of the interval, by the evaluation of in-service data.

A.3.1 Evaluation of In-Service Data. Both scheduled (routine) and/or unscheduled (non-routine) maintenance findings related to the intent of the task. To the extent possible, data from consecutive executions of the specific task should be used to assess reliability of aircraft systems, components, or structural elements related to the task. The following are examples of the types of data that can be presented and used to justify task intervals:

A.3.1.1 Scheduled (Routine) Findings. These findings are a result of inspection tasks performed at a prescribed interval. Also, tasks that generate no findings are equally as important to note (if not more so) in determining effectiveness of task intervals. This data should come from completion of scheduled maintenance or inspections containing the task to be extended. This should identify the number of times (in the sampled data set) the task (or inspection) to be extended has been accomplished. Task findings for the related tasks should be evaluated and categorized for likelihood and severity (qualitative risk analysis). Especially relevant is how many cycles of no findings or insignificant findings have occurred when looking to substantiate an interval.

A.3.1.2 Unscheduled (Non-Routine) Findings. Mechanical irregularities and the resulting corrective actions captured from operational discrepancies and maintenance reports can be used, as applicable. Non-routine findings for the related tasks (if any) should be evaluated and categorized for likelihood and severity (qualitative risk analysis).

A.3.1.3 Component Data (Shop Findings, No-Fault-Found Removals and Failures). If used, information regarding component removal and replacement activity and vendor repair documents should be evaluated and categorized for likelihood and severity. This information provides the data necessary to perform component failure-mode and life-cycle analysis, when the escalation of tasks intervals associated with a specific component is desired.

A.4 Considerations. The following are special considerations to take into account when reviewing the data used for determining task intervals.

A.4.1 Date of Publication. The inspection program or MPD most recently published (or recommended) by the manufacturer (at the time the AIP is submitted for review by the FAA) should be used as the baseline for comparison purposes, which might not necessarily be the program an operator is currently operating under. This could be relevant if an operator was utilizing an older version of the manufacturer's program under § 91.409(f)(3), or if an operator has been operating under an inspection option allowed for under § 91.409(f)(1) or (2). Any items extended or excluded from the baseline program used will require substantiating information to support an adequate justification.

A.4.2 Number of Findings. Just because an inspection does not generate any significant airworthiness findings, that alone is not justification to extend the inspection interval. Task intervals should be designed to be able to catch any problems before they become safety of flight issues. Take the following basic example, a specific task is set to be repeated every 100 flight hours, but the first issue is not discovered until 500 flight hours. The next issue is not found until 800 flight hours. This could be used as data to justify a task interval. The task was repeated eight times and only produced a discrepancy twice. However, note that in the example given, even though the first issue was not found until 500 hours, the next issue was found just 300 hours later. So, based on the data, a task interval of 500 hours would not be appropriate, but an interval that is less than 300 hours could be appropriate with an acceptable margin of safety built in (such as 200 hours).

A.4.3 Criticality. Sometimes, the criticality of the system may dictate that task intervals be designed to give more than one opportunity to find a problem before it becomes a safety of flight issue. So, in the previous example with a failure rate of 1,000 hours, a task interval of 500 hours (two chances) or 325 hours (three chances) could be needed to provide more than one opportunity to catch the failure before it occurred.

Note: This example is only meant to convey a concept, not to provide specific requirements for setting task intervals. Appropriate intervals should be based on a variety of information and more than one or two data points.

A.4.4 Data Source. If the data being used as substantiating information is from aircraft other than the target aircraft (fleet data), the sampled aircraft data presented should be of a similar representation. Ideally, the data should be from an operator's own fleet, especially if the task interval is based on unique operating conditions, but data from multiple operators can be used as appropriate to the item(s) being extended. The acceptability of fleet data is dependent on how potentially different operating procedures and conditions could affect the inspection items in question. Additionally, the aircraft do not need to be identical, but significant differences in the age and operation may result in the data not being adequate for use as substantiating data. The following information should be considered to gauge the overall acceptability of fleet data used to justify task intervals for specific inspections, items, or tasks.

A.4.4.1 Aircraft time (hours/cycles/years) should be similar to the target aircraft, as applicable to the tasks being extended. Alternatively, if the interval only affects specific components (such as the engine), then the data used should be similarly appropriate.

A.4.4.2 Factors such as dry/humid climate and aircraft storage practices when not being operated. If the interval is based on a specific operating environment, then the data used should be from a representative sample that spans the same environment (e.g., extremely hot and sandy (desert), extremely cold (arctic), extremely corrosive (saltwater areas), etc.). If operators are using specific operational/maintenance practices for justification then the data should quantify and support how those practices affect the intervals in question.

A.4.4.3 Aircraft specific information, such as manufacturer model, date of manufacture, and serial number specific information.

A.4.4.4 Operational information, such as daily utilization rate (high, low, average), and specific operational history (including periods of prior ownership, if relevant).

A.4.5 Aircraft Utilization. If the AIP justification denotes a specified utilization, then the AIP should specify the expected utilization parameters. The intervals for tasks identified in the manufacturer's inspection program are usually based on a utilization model that is typical to the industry. An AIP for extremely high or low utilization aircraft should incorporate task intervals appropriate to their operation. Tasking requirements should be addressed on a task-by-task basis to ensure the proper evaluation in regards to the utilization parameters. For low utilization aircraft, ensure that task intervals account for early detection of discrepancies that are sensitive to time (such as corrosion or seal degradation) rather than cycles or flight-hours. Extending task intervals cannot be based on aircraft utilization alone. Data from completed inspection tasks must be considered at a minimum.

A.4.6 Grouped Tasks. If the AIP proposes to extend an entire phase or other collection of inspection tasks, each task within the inspection should be evaluated individually for any potential issues.

A.4.7 Regulatory Requirements. Modification of inspection tasks that affect the airworthiness limitations (AL), component life limits, or ADs do not necessarily have to be excluded, but they would need additional FAA approval outside of the AIP approval process (e.g., approved alteration, alternative method of compliance (AMOC), etc.) before being able to be included in the AIP. In the same fashion, if any tasks have a regulatory requirement (such as transponder or emergency locator transmitter (ELT) checks) those could not be extended without a corresponding exemption. All of these types of separate approvals should be obtained prior to the submission of the AIP for review and approval by the appropriate FAA office (e.g., Aircraft Evaluation Group (AEG), Aircraft Certification Office (ACO), etc.).

A.4.8 Operational Practices. For calendar intervals, the FAA recognizes that aircraft operational practices (e.g., storage procedures, flight routes/altitudes) can have an effect on the formation of defects, but operational practices should not be used as justification for task intervals. Operational practices cannot be assured and would be very difficult or impossible to monitor or regulate. Instead, operators should focus on data from task findings during the accomplishment of the inspections. If operational practices are having an effect, it will also show up in that data.

A.5 Deficiencies. During the review, the FAA will communicate any deficiencies or concerns it finds to the operator so they can decide to re-submit or modify their proposal. Operators can mitigate concerns raised during evaluation of the proposed task intervals by providing further data to substantiate the current proposal, moving the specific task(s) in question to an inspection with a more reasonable interval, or modifying the task(s) to reduce the concern.

A.6 FAA Approval. There is not a separate approval process specifically for task intervals alone. This is accomplished and documented by approval of the entire AIP. If the FAA representative does not find the program acceptable, they will provide the operator a letter of denial with the reason the program was not considered acceptable.

Advisory Circular Feedback Form

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by contacting the Flight Standards Directives Management Officer at 9-AWA-AFS-140-Directives@faa.gov.

Subject: AC 91-90, Part 91 Approved Inspection Programs

Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

_____

_____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

_____

_____

☐ Other comments:

_____

_____

☐ I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____