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| AW/OPS 1.1.042 |  | OPS Inspector Handbook |
| Ground Deicing / Anti-Icing Approval | | Revision 2 |
| | | 26 FEB 14 |

1. Objective

- 1.1. This directive contains policy, direction, and guidance to inspectors for review, evaluation, and approval of deicing/anti-icing procedures.
- 1.2. Evaluation of Operator's Program. The approval process requires the evaluation of the operator's program by a team of inspectors, which is composed of the POI, the principal maintenance inspector (PMI), and inspectors of both operations and airworthiness specialties working under their leadership. The principal avionics inspector (PAI) will become preeminent in the approval process with the advent of icing sensors, which are currently under development, and which will offer an alternative means of determining that the aircraft is free of frost, ice, and snow.
- 1.3. This is a common directive for Airworthiness and Operations.
 - 1.3.1. Close coordination between AW and OPS inspectors executing this directive is required.
 - 1.3.2. During Certification, the nominated PM will be the lead inspector in executing this directive. In other cases the POI and PMI will nominate the lead inspector.
 - 1.3.3. Any amendments to this directive must be made to both AW Inspector Handbook and OPS Inspector Handbook

2. General

2.1. Regulatory Requirements

- 2.1.1. The requirements for operations in ground-icing conditions are covered in ANR.OPS. 158 , 313 , 516

2.2. General Information

- 2.2.1. ANR.OPS. Chap. 13 Regulatory Requirement. ANR.OPS. 394 requires that an operator conducting operations when conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft must satisfy the following criteria:
 - Have and use an approved aircraft ground-deicing/anti-icing program .
- 2.2.2. ANR.OPS. Chap. 12 Regulatory Requirement.

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2.2.2.1 ANR.OPS. 158 and 313 restricts operations when an aircraft has frost, ice, or snow adhering to any rotor blade, propeller, windshield, wing, stabilizing or control surface, powerplant installation, or instrument system. In order to comply with ANR.OPS. 158 and 313 , operators must meet the applicable training requirements and comply with the following:

- Have an authorization for outside the aircraft pretakeoff contamination check, which requires the operator to perform a pretakeoff contamination check within 5 minutes prior to beginning takeoff to ensure that the wings, control surfaces, and other critical surfaces are free of frost, ice, and snow; or
- Have a CAAI approved alternative procedure to determine that the airplane is free of frost, ice, or snow; or
- Have a CAAI approved aircraft ground-deicing/anti-icing program.

2.2.2.2 ANR.OPS. Chap. 12 certificate holder may choose to comply with regulation by having an approved ground-deicing/anti-icing program, in which case the operators must have appropriate procedures in their GMs showing how they are complying with ANR.OPS.. If an operator chooses to operate without a pretakeoff contamination check or without a ground-deicing/anti-icing program, then PIs may only authorize them to operate when ground icing conditions do not exist

2.3. Definitions

2.3.1. Applicable definitions can be found in AP 1.1.042

3. Reference Material, Forms & Job-Aids

3.1. Reference Material

3.1.1. AP 1.1.042

3.1.2. FAA AC 120-60, Ground-deicing and Anti-icing Program,

3.1.3. FAA [AC 135-16](#), Ground-deicing & Anti-icing Training and Checking

3.1.4. FAA [AC 20-117](#), Hazards Following Ground-deicing and Operations in Conditions Conducive to Aircraft Icing.

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4. Process

- 4.1. **ANR.OPS. Chap. 13 Operators.** The approval of ANR.OPS. Chap. 13 operator's ground-deicing/anti-icing program follows the five step general process for approval and acceptance.
- 4.2. **ANR.OPS. Chap. 12 Operators.** For Chap 12 deicing/anti-icing requirements are fulfilled in the completion of an approved deicing/anti-icing training program. Standard procedures for approval Chap. 12 operator training programs must describe or reference pretakeoff contamination check procedures for each specific airplane type. These procedures must also be contained in the operator's GOM.
- 4.3. **Five Step Approval Process.** Should an operator elect to develop a deicing/anti-icing program, the following standard approval process would apply. For purposes of clarity and description, the five stage process is described in this section as five separate and distinct stages. In practice, the stages may overlap, and PIs are authorized to vary the process to fit the circumstances.
- 4.4. **PHASE ONE-INITIAL DISCUSSION.** Phase one begins when the operator initially approaches the CAAI to obtain approval of a ground-deicing/anti-icing program.
- 4.4.1. **Become Familiar with Technical Problems and Regulatory Requirements.** At this stage, both the CAAI team and the operator must become familiar with the technical problems involved and the regulatory requirements. A discussion of these elements is contained in AP 1.1.042 and FAA Advisory Circular [\(AC\) 120-60A](#), Ground-deicing and Anti-icing Program, and FAA [AC 135-16](#), Ground-deicing & Anti-icing Training and Checking. Section 3 of this chapter includes a listing of documents the operator may find useful in developing a program. PIs should ensure that the operator is aware of these sources of information.
- 4.4.2. **Outline Required Elements.** The PIs should outline for the operator those elements that must be contained in the operator's proposed program and the actions that will be required at each stage of the approval process. See section 1 (the previous section).
- 4.5. **PHASE TWO-INITIAL OPERATOR SUBMISSION.** Phase two begins when the operator initially submits a proposed program package. The principal inspectors' first action is to review the operator's submission to determine if each element specified in

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phase one is included. If the operator's initial program is incomplete, the PIs must immediately inform the operator and determine what action the operator proposes to take to complete the package. If the operator's package is complete or the PIs determine that it will soon be complete, the PIs should distribute the elements to the appropriate inspectors for a prompt initial examination. PIs should return obviously unacceptable packages to the operator with a letter outlining the deficiencies.

4.5.1. **Initial Examination.** The initial examination does not include a detailed operational or technical evaluation (this analysis is conducted in phase three). The phase two examination is conducted in sufficient detail to assess the completeness of the operator's package. Inspectors assigned to complete the initial review should promptly complete the initial evaluation and inform the PIs of their findings.

4.5.2. **Unacceptable Elements.** At this point it is appropriate for the PIs to hold a meeting with the operator to discuss any obviously unacceptable elements of the program. Under unusual circumstances, the PIs may need to return the operator's entire package with a written statement that explains why the submission is unacceptable.

4.5.3. **Initially Acceptable Package.** When the operator's package is initially acceptable, the PIs should inform the operator and provide an estimate of when the operator can expect to be informed of the phase three analysis results.

4.6. **PHASE THREE-PRELIMINARY APPROVAL.** Phase three consists of a detailed analysis of the operator's ground-deicing/anti-icing program, training, equipment, and facilities. Throughout phase three, inspectors and operators should expect to encounter various deficiencies. Inspectors and operators should plan to meet and work closely to agree on corrections for these deficiencies throughout phase three.

4.6.1. **Document Review.** The first step in phase three is a detailed review and analysis of those manual sections the operator has prepared for the ground-deicing/anti-icing program.

4.6.1.1 ANR.OPS. 394 requires the manual to provide all categories of employees with sufficient instructions and information to allow them to perform their duties with a high degree of safety. ANR.OPS. requires the certificate holder to prepare and keep current a manual establishing the procedures and policies, which are acceptable to the

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Administrator that must be used by flight, ground, and maintenance personnel.

4.6.1.2 The operator's GOM, including those sections concerning the ground-deicing/anti-icing program, does not require CAAI approval. However, the appropriate principal inspector must review and find acceptable the appropriate sections of the manual before the CAAI grants initial approval to the operator to conduct a ground-deicing/anti-icing program. After the operator receives initial approval of the program or procedures, the applicable PIs may require the operator to further revise manual contents.

4.6.1.3 Inspectors should ensure that the content of the operator's manual meets the following criteria:

- Identifies clearly each category of employee with responsibility for program elements;
- Defines the duties of each category of employee involved; and
- Provides adequate background information, step-by-step procedures and, when appropriate, checklists that allow each category of employee to perform to the required standard.

NOTE: The experience gathered during deicing/anti-icing surveillance has shown that when holdover times have been exceeded, the most critical area of an operator's ground-deicing/anti-icing program is an adequate pre-takeoff contamination check. It is essential for the POI to ensure that the operator's procedures offer the means for personnel to adequately determine that the aircraft is free of contamination before a takeoff during conditions when frost, ice, or snow may reasonably be expected to adhere to the aircraft. This becomes more critical if the POI authorizes the pr-etakeoff contamination check to be conducted from inside the airplane.

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4.6.2. Training Program Review.

The inspector should make a careful review of the requirements of the applicable part of ANR.OPS. before conducting the training program review. The initial and recurrent training requirements for operators who wish to receive approval must covers the training requirements. The operator must prepare a training/testing program to qualify required ground-deicing/anti-icing employees to perform their assigned duties.

- 4.6.2.1 The training must include both general procedures and the specific requirements of each make, model, series, and variant of aircraft.
- 4.6.2.2 The training program must include a means of testing and qualification for each category of employee who is covered under the approved program and who checks, inspects, deices, anti ices, releases, dispatches, or operates an aircraft.
- 4.6.2.3 The operator's training program must include flightcrew and dispatcher training.

4.6.3. **Facilities and Equipment.** The operator must acquire and deploy the equipment to accomplish ground-deicing/anti icing. Inspectors should plan to inspect some or all of the facilities at which this equipment is deployed (depending on the size of the operator) before granting initial approval. Some operators fulfill part of this requirement by demonstrating the knowledge of procedures and equipment during non icing conditions prior to the deicing/anti-icing season. Inspectors must also evaluate coordination procedures between the airport operator and the air traffic control (ATC) facility at the airport.

4.7. **PHASE FOUR-VALIDATION TESTING.** Phase four consists of a validation of the operator's procedures in actual operations. This process consists of a progressive refinement of the operator's manuals, checklists, and procedures as experience is gained and CAAI surveillance reports become available.

4.7.1. **Reason for Surveillance.** Surveillance of the operators' ground-deicing/anti-icing programs or procedures is necessary to evaluate the effectiveness of these programs as well as to provide input on the adequacy of the rule requirements. Surveillance will further identify problem areas and will facilitate corrective action. The intended result of this surveillance program is to promote a safe winter operating season.

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4.7.1.1 Surveillance Prerequisites. As a prerequisite to conducting surveillance, inspectors should review ANR.OPS. 158, 313, 516, AP 1.1.042, FAA [AC 120-60](#), Ground-deicing and Anti-icing Program, FAA [AC 120-58](#), Pilot Guide to Large Aircraft Ground-deicing and FAA [AC 20-117](#), Hazards Following Ground-deicing and Operations in Conditions Conducive to Aircraft Icing.

4.7.1.2 Conduct of Inspections.

The only time that it may be possible to determine that the operator's ground-deicing/anti-icing procedures are safe and effective is during actual icing conditions. Therefore, inspection of operator ground-deicing/anti-icing procedures should be conducted during the times that winter operations and certificate holders' ground-deicing/anti-icing procedures are in effect. Inspector surveillance is a sampling process. It is not intended to observe every deicing operation that occurs during the time that ground-deicing/anti-icing operations are ongoing. The required number of ground-deicing surveillance activities necessary to determine a particular operator's effectiveness may vary from a relatively low percentage to a very high percentage. For certain operators, 100 percent surveillance may be necessary in order to determine the operator's capability to safely operate during ground-icing conditions.

4.7.1.2.1. Inspections can be conducted in conjunction with ramp, station or en route inspections, or during airport site visits.

4.7.1.2.2. Surveillance of operators' recurrent ground-deicing/anti-icing testing or training programs should also be conducted.

4.7.1.2.3. The PMI should coordinate an inspection of the ground-deicing/anti-icing equipment used by the operator, with the authority responsible for each airport where the equipment is located. In some cases, one operator or contractor may deice more than one air carrier. In this case, it is necessary for the PMI to ensure that the operator/contractor doing the deicing has a complete knowledge of the specific operator's approved ground-deicing / anti-icing program. The PMI can conduct this type of surveillance prior to the deicing/anti-icing season and should confirm that the company performing the deicing has knowledge and ability regarding ground-deicing/anti-icing equipment.

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4.7.2. Conclusion of Phase Four.

Phase four may be concluded when, in the judgment of the POI and PMI, surveillance of the operator's program shows that the operator is successfully conducting the program under actual ground-icing conditions. There is no minimum time period for phase four, but the PIs must have an adequate number of surveillance reports to form an educated opinion of the operator's performance. Normally, operators should be able to progress through phase four in one winter season or less.

5. Task Outcomes

- 5.1. **Deficiencies.** If final approval cannot be granted after an entire winter season due to deficiencies in the operator's program, the POI and PMI should consider having the operator return to phase two.
- 5.2. **PHASE FIVE-FINAL APPROVAL.** When the PIs are satisfied with the operator's performance, they should inform the operator in writing that the verification process is complete.