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May 2007

Final Report

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Sonceré Woodford[1], Vasudeva Kolli[2], and Chuck Agava[2]	

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[1] Federal Aviation Administration William J. Hughes Technical Center Airport and Aircraft Research and Development Division Flight Safety Branch Atlantic City International Airport, NJ 08405	[2]Hi-Tec Systems 500 Scarborough Drive Egg Harbor Township, NJ 08234	11. Contract or Grant No. DTFA03-00-D-00021/Task0005

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A task was recently awarded to support the Risk Management Decision Support for the General Aviation (GA) Research and Development Program. The purpose of this task is to provide research, project planning, and program support to accomplish task GA-01, which involves Title 14 Code of Federal Regulations Part 137 Aviation System Functional Model Development.

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  Matt Ziomek, Aerial Firefighting Industry Association (AFIA)
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LIST OF ACRONYMS

AC	Advisory Circular
AFM	Air flight manual
AFS	Flight Standards Service
ASFM	14 CFR Part 137 Aviation System Functional Model
ASI	Aviation Safety Inspectors
ATC	Air Traffic Control
CFIT	Controlled flight into terrain
CFR	Code of Federal Regulations
DER	Designated Engineering Representative
DOA	Department of Agriculture
DOI	Department of Interior
DOT	Department of Transportation
EPA	Environmental Protection Agency
EWIS	Electrical Wiring Interconnection System
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
GA	General Aviation
ICOM	Input, control, output, mechanism
IDEF0	Integrated Definition Language
MIE	Maintenance, inspection and engineering
NPG	National Program Guidelines
NTSB	National Transportation Safety Board
OSHA	Occupational Safety and Health Administration
PTR	Problem trouble report
RADAR	Radio detection and ranging
RCSM	Restricted Category Surplus Military
R, E&D	Research, engineering and development
RFM	Rotorcraft flight manual
SAGA	Systems Approach to General Aviation
SASO	System Approach for Safety Oversight
SOP	Standard operating procedure
STC	Supplemental type certificate
SUPS	Suspected unapproved parts
SAWRS	Supplementary aviation weather reporting station
TSA	Transportation Security Administration

EXECUTIVE SUMMARY

Rigorous, defensible analyses, based on a validated system model and standardized, objective data, are a necessary integral component of the system safety approach to identifying, measuring, and predicting safety-related problems. The foundation for an effective systems safety approach is a requirements analysis to determine the capabilities that an air carrier oversight system must have and a functional analysis to describe the structure of an air carrier. Important aspects of the functional analysis are a description of the elements of the air carrier's functions and an analysis of the relationship between these elements. These analyses form the foundation or basic architecture upon which other task areas—hazard analysis, performance measure, and risk indicator design—are based. The output of a functional analysis is a system-engineering model that presents, in graphical format, the major processes of the system, identifying inputs, outputs, mechanisms, and controls.

Representatives from the Federal Aviation Administration (FAA), representatives from the National Agricultural Aviation Association, Title 14 Code of Federal Regulations (CFR) Part 137 agricultural aircraft operators, and other subject matter experts met several times during 2003-2004 to develop a system engineering model of the generic functions of agricultural aircraft operations. From these meetings, the team developed the 14 CFR Part 137 Aviation System Function Model (ASFM).

ASFM, Version 2.0, serves as the foundation for FAA research, engineering and development efforts to support a system safety approach to aviation safety oversight. This model will be used in the development of safety performance measures and risk indicators work processes to support the collection of data to be used in analysis and analytical methods, including information presentation.

The model also provides an important communications bridge between the FAA and the aviation industry during this evolution of a system safety approach. For example, each agricultural aircraft operator has its own internal models of their processes. By developing an external model, in which industry and FAA participants identify and agree upon the functions and definitions of the model, then a standard model is put forward that provides a common point of reference. Thus, everyone is looking at the same model, using the same definitions, and talking about the same thing.

The model structure uses the Integrated Definition Function Model format, as defined in Federal Information Processing Standards Publication 183, and as captured in AllFusion Process Modeler, a commercial product from Computer Associates. With this structured language and tool, the analysis of critical system interactions and potential system vulnerabilities will be enhanced and clarified. The descriptions of complex operations will be explicit and open.

ASFM concentrates on following key agricultural aircraft operation processes:

- Operational management
- Aerial application operations
- Aircraft maintenance, inspection and engineering
- Personnel training
- Operational resources provision

1. INTRODUCTION.

The Federal Aviation Administration (FAA) conducted research and development in support of making Flight Standards Service (AFS) oversight more systematic, effective, efficient, and risk-based. To accomplish the above, in support of System Approach for Safety Oversight (SASO) combined with Systems Approach to General Aviation (SAGA) requirements from General Aviation and Commercial Division (AFS-800), a set of requirements specific to Title 14 Code of Federal Regulations (CFR) Part 137 were developed. The requirement GA-01 "Aviation System Functional Model Development" from the SASO general aviation research, engineering and development requirements, FY 2004-2006 requires an aviation system function model of the 14 CFR Part 137 Agricultural Aircraft Operations be developed.

SAGA is AFS-800s program for fostering aviation safety and awareness through the joint collaboration of government and industry in the application of new technology, training and education, and decision-making. The philosophy underlying SAGA is that of system safety, which involves understanding how the various components of the aviation system, i.e., people and organizations, equipment and technology, and the regulatory environment, interact. System safety involves understanding how these components function and interact, which includes:

- identifying the potential hazards of the system,
- estimating the impact and likelihood of those hazards occurring,
- designing controls to reduce the occurrence of accident causal factors, and defenses to mitigate the effects of accidents should they occur, and
- monitoring those controls and defenses to ensure that they are being implemented and that they are effective in their intent.

Rigorous, defensible analyses, based on a validated system model and standardized, objective data, are a necessary integral component of the system safety approach to identifying, measuring, and predicting safety-related problems. The foundation for an effective systems safety approach is a requirements analysis to determine the capabilities that an agricultural aircraft operations system must have and a functional analysis to describe the structure of an agricultural aircraft operator. Important aspects of the functional analysis are a description of the agricultural aircraft operator's functions and an analysis of the relationship between these elements. These analyses form the foundation or basic architecture upon which other task areas—hazard analysis, performance measure, and risk indicator design—are based. The output of a functional analysis is a system-engineering model that presents, in graphical format, the major processes of the system, identifying inputs, outputs, mechanisms, and controls.

1.1 14 CFR PART 137 AVIATION SYSTEM FUNCTIONAL MODEL.

Representatives from the FAA, representatives from the National Agricultural Aviation Association, 14 CFR Part 137 agricultural aircraft operators, and other subject matter experts met several times during 2003-2004 to develop a system engineering model of the generic functions

of agricultural aircraft operations. From these meetings, the team developed the 14 CFR Part 137 Aviation System Function Model (ASFM).

ASFM, Version 2.0, serves as the foundation for FAA research, engineering and development (R, E&D) efforts to support a system safety approach to aviation safety oversight. This model will be used in the development of safety performance measures and risk indicators, work processes to support the collection of data to be used in analysis, and analytical methods, including information presentation.

The model also provides an important communications bridge between the FAA and the aviation industry during this evolution of a system safety approach. For example, each agricultural aircraft operator has its own internal models of their processes. By developing an external model, in which industry and FAA participants identify and agree upon the functions and definitions of the model, then a standard model is put forward that provides a common point of reference. Thus, everyone is looking at the same model, using the same definitions, and talking about the same thing.

The model structure uses the Integrated Definition Function Model (IDEF0) format, as defined in Federal Information Processing Standards Publication 183, and as captured in AllFusion Process Modeler, a commercial product from Computer Associates. With this structured language and tool, the analysis of critical system interactions and potential system vulnerabilities will be enhanced and clarified. The descriptions of complex operations will be explicit and open.

This document provides a brief overview of the reason for developing ASFM and a description of the IDEF0 method used to develop the model, followed by a presentation of the ASFM, Version 2.0.

The appendix contains the controls (regulations, orders, bulletins, advisory circulars (AC), and airworthiness directives) and hazards associated with the functions of the ASFM.

1.2 OBJECTIVES.

The goals of the ASFM effort are to

- develop a system engineering model using the IDEF0 standard, which demonstrates the processes and interrelationships of the agricultural aircraft operator's functions to be used in the development of performance measures and risk indicators.

- provide a common definition of agricultural aircraft operation processes and terminology to promote understanding of agricultural aircraft operational activities and functions.

The ASFM is critical for understanding the impact of change related to agricultural aircraft operators and FAA activities and the interactions among the elements of the agricultural aircraft operators and other programs. It is hoped that an accurate descriptive functional model will enable agricultural aircraft operators and the FAA to interact more effectively on safety management matters.

1.3 RESEARCH, ENGINEERING AND DEVELOPMENT EFFORTS.

The ASFM will be used to perform the following R, E&D efforts:

- The development of additional models to be used to give more consideration to the understanding of safety-critical relationships between agricultural aircraft operators and their supporting maintenance and training contractors
- Identification of the 14 CFR parts associated with each Input, Control, Output, Mechanism (ICOM) and process
- Identification of the 14 CFR parts associated with the interfaces across diagrams
- Hazard identification and risk assessment
- Safety performance evaluation
- Certificate management “To-Be” model development
- Proof-of-concept experiment planning

2. IDEF0 NOTATION.

IDEF0 (pronounced eye-deaf-zero) is a modeling technique used to create a description of a business or organizational process and is used where process or functional models are beneficial in analyzing how the organization or system currently conducts its business.

IDEF0 is a graphical approach using boxes and arrows to describe a process. The boxes represent activities conducted within the organization or system, and arrows represent objects or information involved in the activities. The arrows are subdivided into four categories:

- Inputs: Items consumed by the activity, e.g., materials and information
- Controls: Documentation that guides, regulates, or influences the activity, e.g., rules, regulations, policies and procedures
- Outputs: Items produced by the activity, e.g., material and information
- Mechanisms: Entities used to realize the activity, e.g., people, organizations, systems, facilities, equipment

In IDEF0 terminology, these are called ICOMs, an acronym for Input, Control, Output, and Mechanism. ICOMs connect to an activity box from different sides of the box: Controls connect at the top, Inputs connect at the left, Outputs connect at the right, and Mechanisms connect at the bottom, as shown in figure 1.

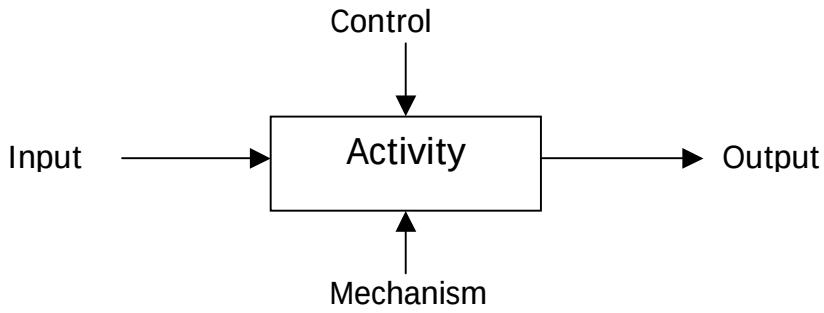

Figure 1. IDEF0 Model View

An IDEF0 model starts by representing the whole system as a simple activity in a single diagram called the context activity. A diagram is the detailed description of a certain activity (or function) whose name (Title) and activity number (Node) in the activity hierarchy are shown at the bottom of each diagram. A diagram consists of boxes representing the activities (functions) and arrows representing the information or objects interacting with the related activities.

The context diagram, the A-0 diagram (called the A minus 0 diagram), defines the context and boundary of the system the model addresses. Only one box called the context activity appears on this diagram representing the function of the system and arrows entering or exiting this box indicate interactions between the system and the external environment. When the context activity is decomposed into detailed levels, those arrows will automatically link to corresponding subactivities and appear on the subdiagrams. Each subactivity will be further decomposed into its own subactivities, using subdiagrams to describe the process in more detail. This decomposition process continues until each activity has enough detail to evaluate all the relevant processes. These hierarchical diagrams comprise the core of the IDEF0 model.

Figure 2 shows a typical decomposition diagram hierarchy.

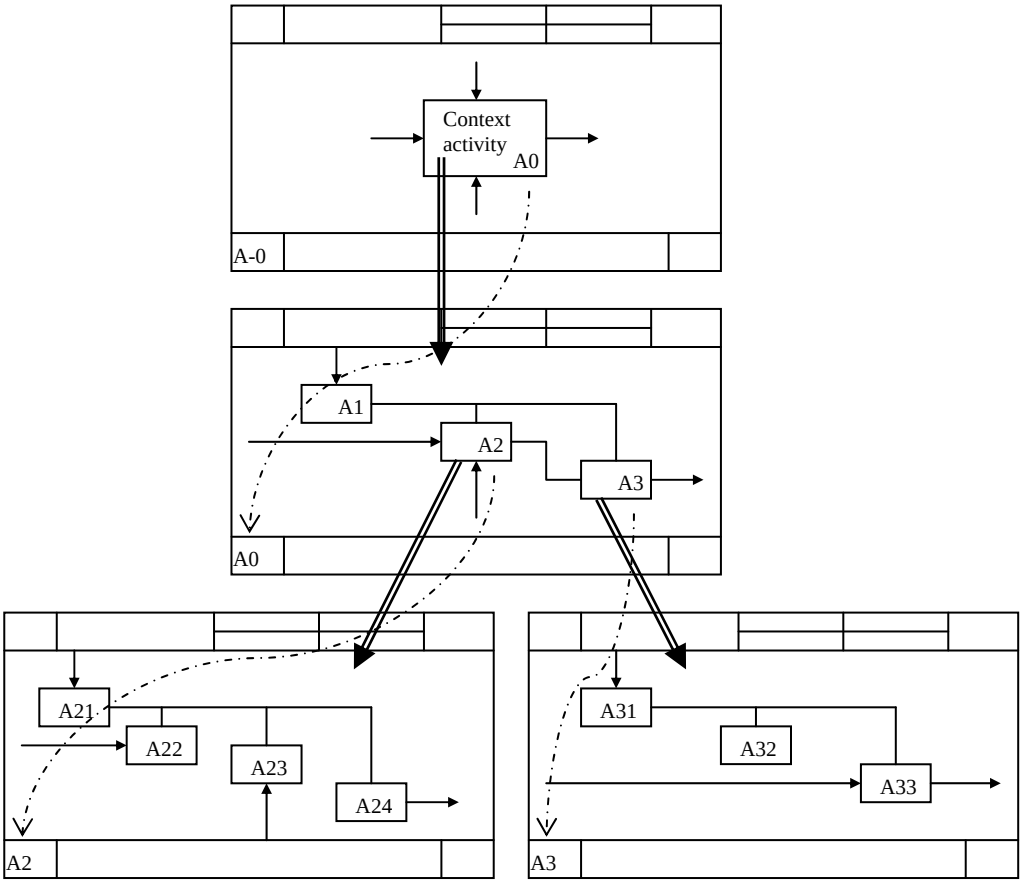

Figure 2. A Typical IDEF0 Diagram Hierarchy

3. DESCRIPTION OF ASFM.

3.1 MODEL DEFINITION.

Model Name:	14 CFR Part 137 Aviation System Functional Model (ASFM)
Author Name:	ASFM Team
Status:	Final (Version 2.0)
Last Revision Date:	March 03, 2006

3.1.1 Purpose.

The purpose of the ASFM is to develop a system-engineering model of the generic functions of 14 CFR Part 137 agricultural aircraft operation activities and interactions among functions used to accomplish those activities.

3.1.2 Scope.

ASFM concentrates on the following key agricultural aircraft operation processes:

- Operational management
- Aerial application operation
- Aircraft maintenance, inspection and engineering
- Personnel training
- Operational resources provision

The following are beyond the scope of the ASFM model:

- Processes with supporting staff such as accounting, finances and property acquisition, information services, human resources, medical, legal, and public relations

- Processes done by some subcontractors

The model can be defined at different levels of detail to meet various kinds of requirements. As the first effort, ASFM details agricultural aircraft operation processes down several layers until further detail becomes less beneficial in the generic model.

3.1.3 Viewpoint.

The model is developed from the agricultural aircraft operator owners or agricultural aircraft operator business managers' viewpoint.

3.1.4 Audience.

The model is intended for those who have a basic understanding or background in the agricultural aircraft operators industry.

3.2 THE ASFM DEVELOPMENT PHILOSOPHY.

Through the ASFM development, the following conventions are applied to make the model easily read and consistent.

3.2.1 Activity (Function) Decomposition.

The context activity of ASFM, which is used to describe the system itself, is defined as Operate Aerial Application Business. Here, Operate Aerial Application Business is understood as a set of activities directly related to dispersing any product/dispersant conducted by agricultural aircraft operators operated under 14 CFR Part 137. The context activity, Operate Aerial Application Business, is decomposed into five subactivities that comprise a child diagram relative to the parent diagram:

- Manage the aerial application business
- Perform personnel training

- Perform aircraft maintenance, inspection and engineering
- Perform aerial application operations
- Provide aerial application operation resources

Each subactivity on this child diagram is further decomposed into a more detailed level on its own subordinate diagrams, based on the philosophy defined in figure 3.

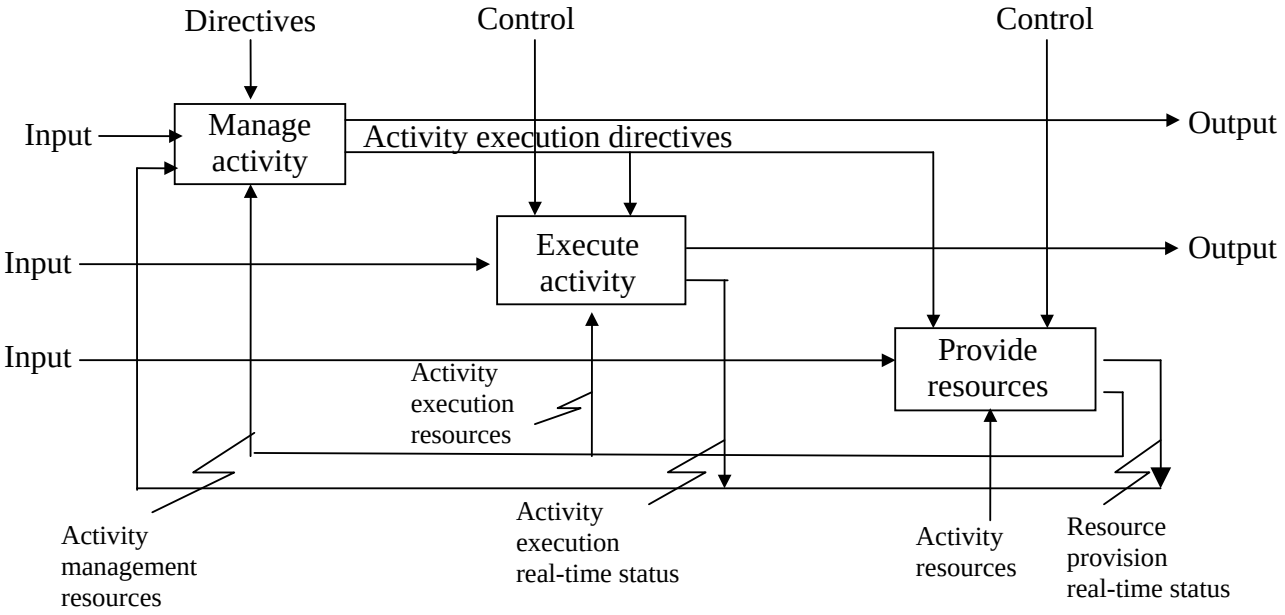

Figure 3. Function Decomposition Philosophy

The Manage activity provides activity management functions including the scheduling, directing, and coordination of the execution of other activities on the same diagram and also identifies resource requirements to conduct those activities.

The Execute activity performs the function of converting the input into the output under the directives from the Manage activity and with the resources from the resources provision function.

The Provide resources selects, allocates, and supplies any necessary resources to support the above two activities. Here, resources means the components necessary for the successful accomplishment of certain functions. The components are defined as properly trained and certified personnel, adequate facilities, required information, and material support.

Since function A5—Provide aerial application operation resources on the A0 diagram is supposed to acquire, allocate, and supply all resources for agricultural aircraft operations, the box: Provide resources on figure 3 does not need to be shown on each diagram. Therefore, the decomposition template used for function decomposition is shown in figure 4.

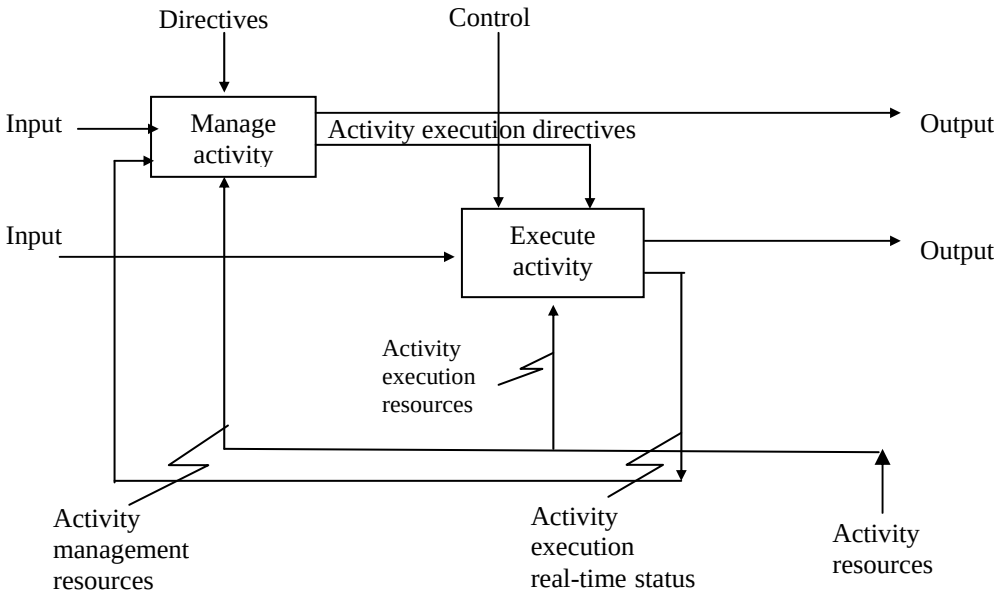

Figure 4. Typical Diagram Template

3.2.2 Real-Time Status Arrows.

Each function, except the manage activity located at the upper-left corner of each diagram, has a real-time status arrow as its output. The real-time status arrows are logical connections linking different functions to broadcast the real-time performance of each function to others for information sharing purpose. Those real-time status arrows are not used as primary information carriers to initiate functions.

If a function produces specific information that is used as a primary input by another function, a separate output arrow, instead of real-time status arrow, is used to carry this specific information.

3.2.3 Directives Arrows.

Each function has a directives arrow as its control to regulate its execution process. The directives include policies, procedures, or instructions, and can exist in various kinds of forms such as manuals, e-mail, notes, phone call, conversation, etc.

3.2.4 Control Patterns.

There are two kinds of linking patterns of the control arrows imported from the parent level of function in the ASFM. Figure 5 shows the control patterns.

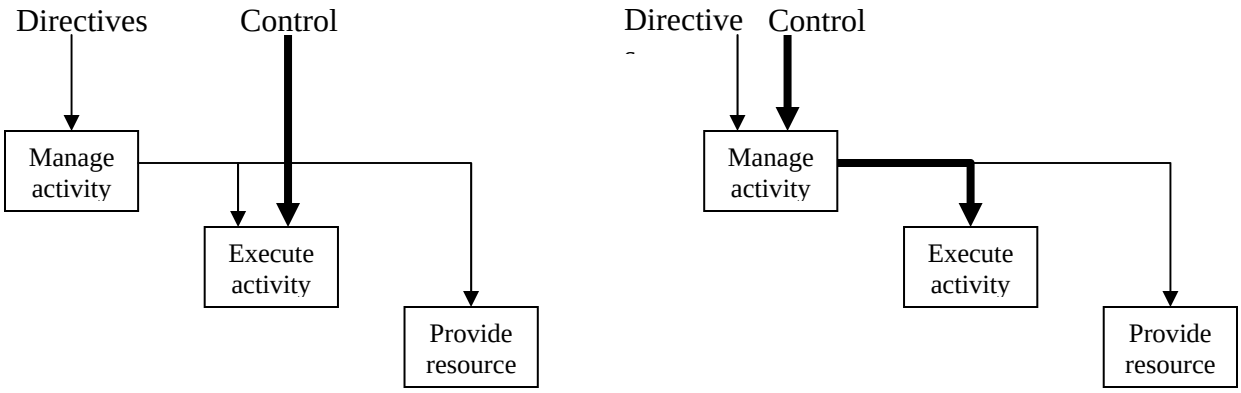

Figure 5. Control Patterns

The Control arrow (bold) is either directly linked to a executive function to direct its execution (as shown on the left of figure 5) or linked to management function first and then through its Output (function execution directives) to direct the execution of the function (as shown on the right of figure 5).

The pattern on the left of figure 5 shows that the Control information can be directly applied to or directly used by the executive function, whereas the pattern on the right indicates the Control information needs to be converted or interpreted into Directives before it is used to direct the execution of activity.

4. THE ASFM ACTIVITY HIERARCHY.

The activity number in the front of each activity shows its location in the activity hierarchy. Examples include:

- A-0 is the context activity defining the system, and it is located at the top of the activity hierarchy.
- A1, A2, A3, A4, and A5 are subactivities decomposed from A0 and are located on the first level of the decomposition hierarchy.
- A3.1, A3.2, A3.3, and A3.4 are subactivities decomposed from A3 and are located on the second level of the decomposition hierarchy.
- A3.2.1, A3.2.2, and A3.2.3 are subactivities decomposed from A3.2 and are located on the third level of the decomposition hierarchy.

In the IDEF0 model, a set of subactivities directly decomposed from a parent activity comprises a diagram that shows the interaction between those activities.

The activity hierarchy of the 14 CFR Part 137 ASFM is presented below.

A0 Operate Aerial Application Business
- A1 Manage the aerial application business
  - A1.1 Manage aerial application functions
  - A1.2 Plan operations
    - A1.2.1 Coordinate plan development
    - A1.2.2 Develop training plan
    - A1.2.3 Develop maintenance plan
    - A1.2.4 Develop operation plan
    - A1.2.5 Develop resource provision plan
  - A1.3 Perform operational control
    - A1.3.1 Manage operational control
    - A1.3.2 Plan aerial application operation segments
      - A1.3.2.1 Manage operation segment planning
      - A1.3.2.2 Evaluate weather
      - A1.3.2.3 Plan aerial application routes
      - A1.3.2.4 Perform chemical load/fuel planning
      - A1.3.2.5 Assign aircraft
      - A1.3.2.6 Assign operation personnel
    - A1.3.3 Dispatch aircraft
    - A1.3.4 Perform maintenance control
  - A1.4 Develop operator policies and procedures
    - A1.4.1 Coordinate aerial application operator policy and procedure development
    - A1.4.2 Develop maintenance policies & procedures
    - A1.4.3 Develop operation policies & procedures
      - A1.4.3.1 Manage operations policy & procedure development
      - A1.4.3.2 Identify operations policies & procedures
      - A1.4.3.3 Develop & evaluate operations policies & procedures
    - A1.4.4 Develop training policies & procedures
    - A1.4.5 Develop administrative policies & procedures
  - A1.5 Administer safety program
    - A1.5.1 Manage safety program administration
    - A1.5.2 Collect/analyze safety data
    - A1.5.3 Perform investigation
    - A1.5.4 Perform internal evaluation
    - A1.5.5 Perform safety awareness program
  - A1.6 Perform information management
    - A1.6.1 Coordinate information management
    - A1.6.2 Perform record keeping
    - A1.6.3 Administer technical publication
- A2 Perform personnel training
  - A2.1 Manage personnel training
  - A2.2 Identify and analyze training requirements
  - A2.3 Design and develop training

A2.3.1 Manage training design & development
A2.3.2 Develop training objectives
A2.3.3 Select training provider
A2.3.4 Develop training curriculum
A2.4 Implement training
A2.4.1 Manage training implementation
A2.4.2 Conduct class training
A2.4.3 Conduct simulator/aircraft training
A2.5 Evaluate training
A2.5.1 Manage training evaluation
A2.5.2 Conduct system training evaluation
A2.5.3 Conduct aircraft training evaluation
A3 Perform aircraft maintenance, inspection & engineering
A3.1 Manage MIE
A3.2 Perform aircraft maintenance
A3.2.1 Manage aircraft maintenance
A3.2.2 Evaluate aircraft
A3.2.2.1 Manage aircraft evaluation
A3.2.2.2 Detect/Diagnose aircraft discrepancies
A3.2.2.3 Diagnose aircraft discrepancies
A3.2.2.4 Assess aircraft discrepancies
A3.2.3 Perform scheduled/nonscheduled maintenance
A3.2.3.1 Manage scheduled/nonscheduled maintenance
A3.2.3.2 Perform aircraft repair
A3.2.3.3 Perform aircraft test
A3.3 Perform ground equipment maintenance
A3.4 Perform engineering support
A3.4.1 Manage engineering support
A3.4.2 Perform standardization & modification
A3.4.3 Perform aircraft operation support
A4 Perform aerial application operations
A4.1 Manage aerial operations
A4.2 Perform dispensing operation
A4.2.1 Manage dispensing operation (Pilot)
A4.2.2 Perform takeoff
A4.2.3 Perform ferry
A4.2.4 Perform dispensing
A4.2.5 Perform landing
A4.3 Perform ground operation
A4.3.1 Manage Ground Operation
A4.3.2 Perform preflight activities
A4.3.3 Perform aircraft ground services
A4.3.4 Perform dispersant handling
A4.3.5 Perform postflight activities
A5 Provide aerial application operation resources
A5.1 Manage aerial application operation resource provision

A5.2 Identify resource needs
A5.3 Collect resource information
A5.4 Procure resources
A5.5 Provide human resources
A5.5.1 Manage human resource provision
A5.5.2 Select candidates for job positions
A5.5.3 Release personnel for assignment

5. MODEL DIAGRAMS.

The IDEF0 diagrams of the ASFM, showing the interactions among activities and generated by the AllFusion Process Modeler, are presented in this section. Each diagram is followed by the definitions of activities, and the ICOMs appearing on the diagram.

The following conventions are used for reading facilitation purpose:

- Arrow and text in red color are referred to as Control to its destination function
- Arrow and text in blue color are referred to as Input to its destination function
- Arrow and text in green color are referred to as Mechanism to its destination function
- Arrow and text in black color are referred to as Output to the outside environment of system

USED AT:	AUTHOR: 14 CFR Part 137 Team	DATE: 12/17/2003	WORKING	READER	DATE	CONTEXT:
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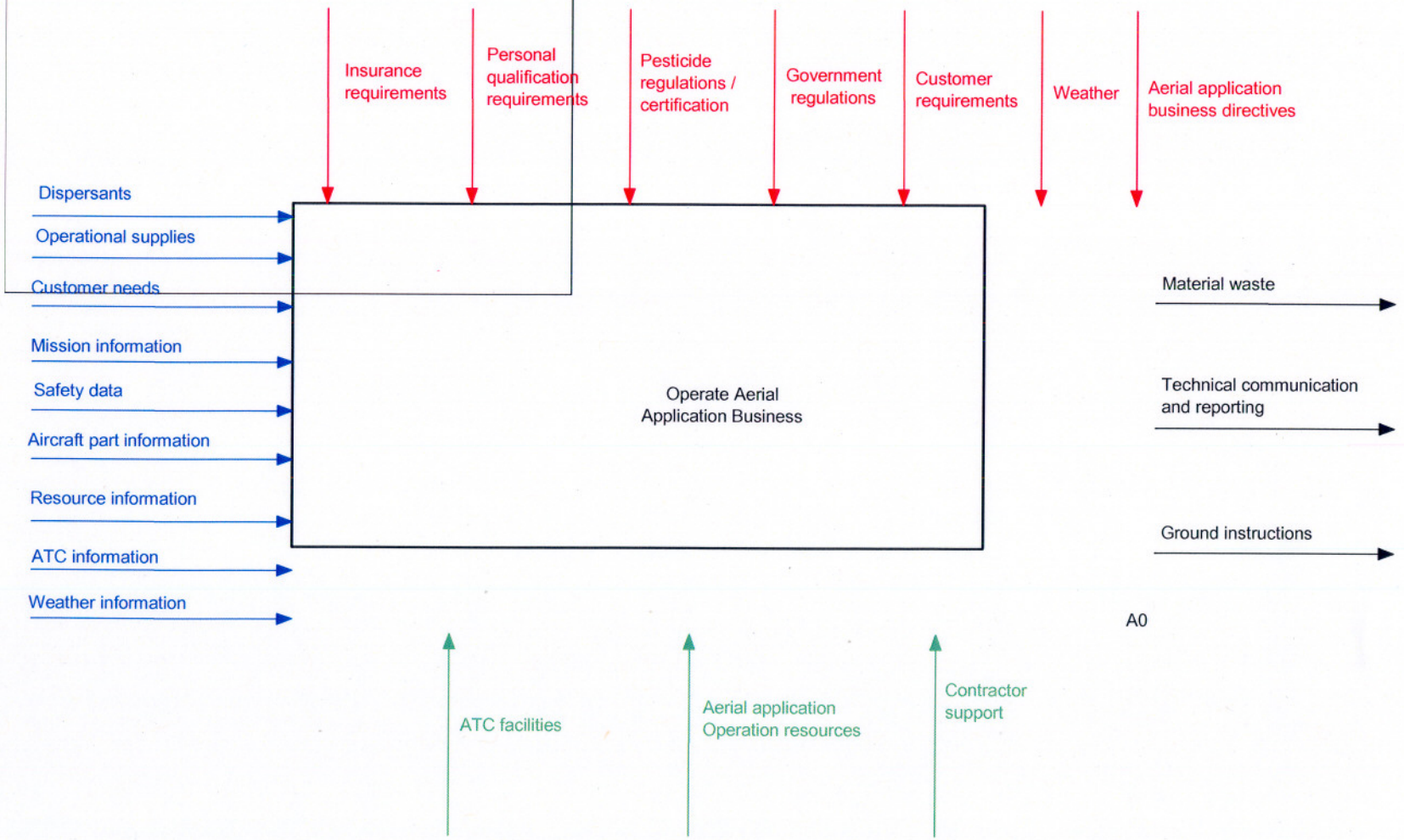
	NOTES: 1 2 3 4 5 6 7 8 9 10		RECOMMENDED			
			PUBLICATION			



NODE:	TITLE:	NUMBER:
A-0	Operate Aerial Application Business	

5.1 A-0—OPERATE AERIAL APPLICATION BUSINESS.

This includes the operation of an aerial aircraft for the purpose of dispensing any product/dispersant.

This is the context diagram, which defines the system and the system boundaries. The information/objects linking to this activity represent the interaction between the aerial application business and the external environment.

The outputs of this activity, shown as arrows exiting from the right side of the activity box, are:

- Material waste
- Technical communication and reporting
- Ground instructions

The inputs used to generate these outputs, shown as arrows entering the left side of the activity box, are:

- Dispersants
- Operational supplies
- Customer needs
- Mission information
- Safety data
- Aircraft part information
- Resource information
- ATC information
- Weather information

The execution of this activity is governed by a set of regulations or constraints related to the government, agricultural aircraft operator and its environment, etc. They are represented as controls entering the top of the activity box and include:

- Insurance requirements
- Personal qualification requirements
- Pesticide regulations/certification
- Government regulations

- Customer requirements
- Weather
- Aerial application business directives

A set of resources are needed to support the execution of the activity that are considered as mechanisms entering the bottom side of the activity box in the diagram:

- ATC facilities
- Aerial application operation resources
- Contractor support

The ICOMs appearing on this A-0 diagram will automatically appear on its child diagrams throughout the activity decomposition but will be connected to more specific activities since the decomposition is on a more detailed level.

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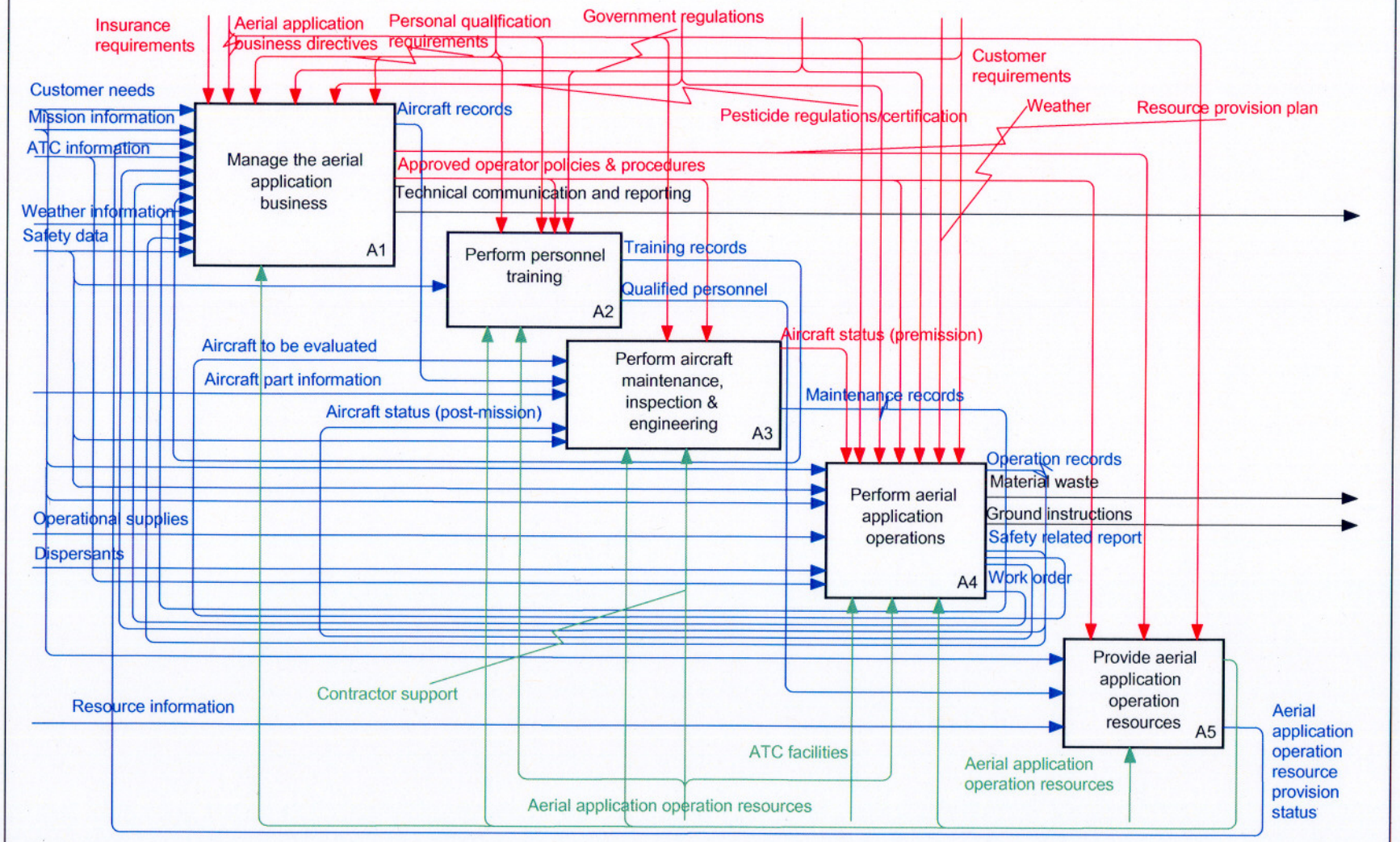

NODE:	TITLE:	NUMBER:
A0	Operate Aerial Application Business	

5.2 A0—OPERATE AERIAL APPLICATION BUSINESS.

This includes the operation of an aerial aircraft for the purpose of dispensing any product/dispersant.

Input Name: Dispersants
Input Definition: Any product/substance dispensed from an aerial application aircraft.

Control Name: Insurance requirements
Control Definition: The requirements stated by an insurance carrier as to the requirements and limitations with respect to, for example, personnel qualifications, scope and details of operations, materials to be used, and so forth.

Output Name: Material waste
Output Definition: Material/poison for which specific requirements are needed for their disposal.

Mechanism Name: ATC facilities
Mechanism Definition: Facilities that provide air traffic control (ATC) services. These services are services to promote the safe, orderly, and expeditious flow of air traffic within a national airspace system.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to fuel, lubricants, parts, etc.

Input Name: Weather information
Input Definition: Reports/forecasts received from national weather service or an independent contractor.

Control Name: Personal qualification requirements
Control Definition: Requirements for personnel to conduct specific aerial application operations. This also includes specifications on what kind of training is needed based on the analysis of job task requirements and personnel qualification requirements.

Output Name: Technical communication and reporting
Output Definition: Documents and dialog generated during the operations of an aerial application operator used for communicating with external organizations such as the FAA, Environmental Protection Agency (EPA), state organizations, contractors, and others in the industry, etc.

Mechanism Name: Aerial application operation resources

Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Customer needs
Input Definition: Requests from the customer for a service.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Output Name: Ground instructions
Output Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

Input Name: Mission information
Input Definition: This includes but is not limited to flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, Department of Transportation (DOT), Department of Interior (DOI), Department of Agriculture (DOA), EPA, Transportation Security Administration (TSA), and Operational Safety and Health Administration (OSHA) to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Customer requirements
Control Definition: Customer requirements include experience, training, and proficiency requirements beyond those required by applicable regulations.

Input Name: Aircraft Part information
Input Definition: Data related to aircraft parts such as identification, manufacturer, price, specifications, and appropriate records.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as: Contractor weather services, Field conditions, National weather service, Other government weather services, Pilot reports, radio detection and ranging (RADAR) and supplementary aviation weather reporting station (SAWRS).

Input Name: Resource information
Input Definition: Information regarding resources such as fuel (grade, quality, availability, audits, and cost), chemical supplies, staffing, human resources requirements, ground facility/supply equipment, and automation. This also includes information regarding operational needs for improving operations such as personnel training, maintenance and operational program changes, maintenance, and operational requirements.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as: Operational efficiency, Economics, Delays, Environmental impact, Labor relations, Geographical issues, and vendor/contractor selection.

Input Name: ATC information
Input Definition: Information about ATC used for operational policy and procedure development.

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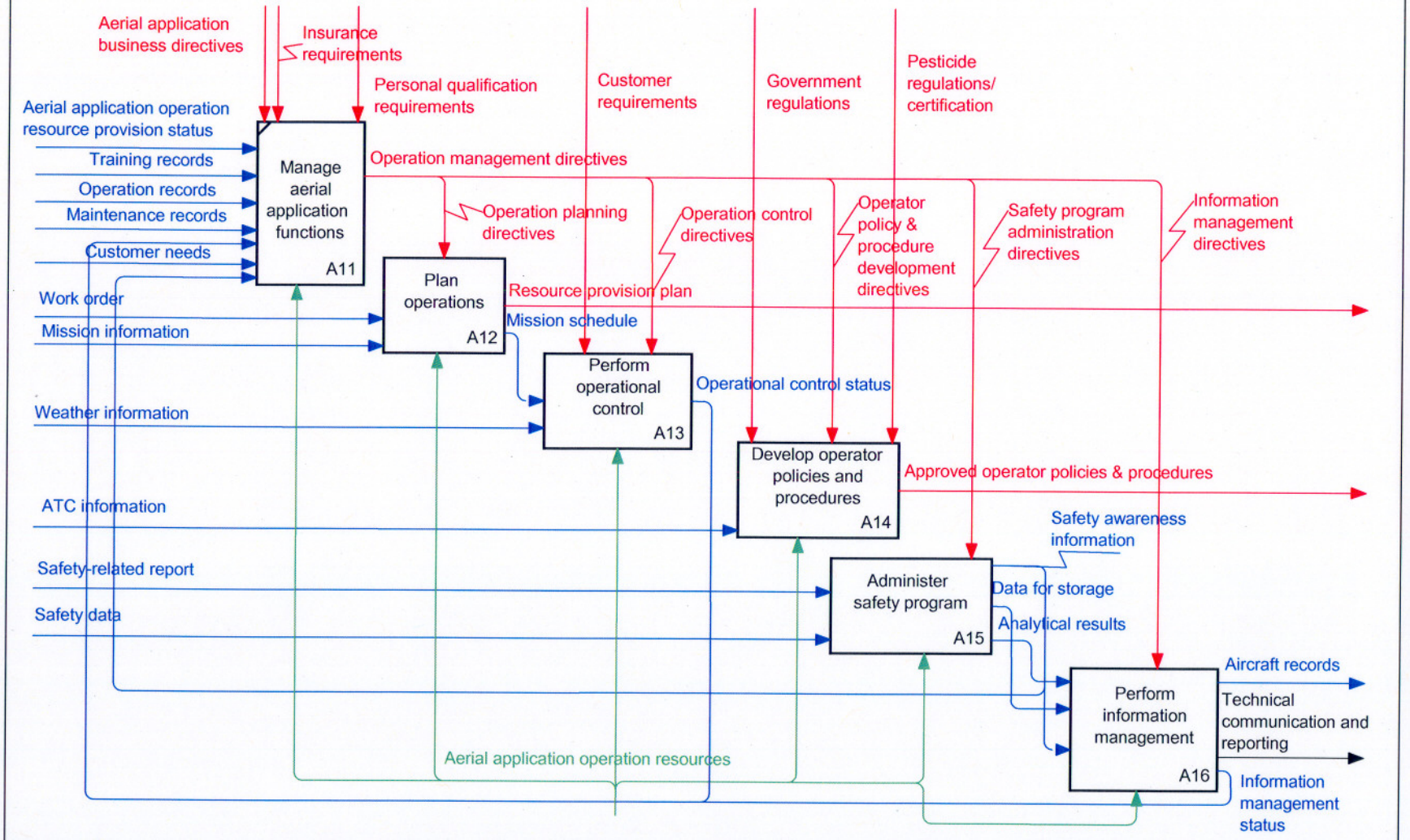

NODE:	TITLE:	NUMBER:
A1	Manage the aerial application business	

5.3 A1—MANAGE THE AERIAL APPLICATION BUSINESS.

This function directs, schedules, and coordinates the following component activities of the aerial application operations: Perform personnel training; Perform maintenance, inspection and engineering (MIE); Perform aerial application operations; and Provide aerial application operation resources. It provides directives, defines requirements and controls, establishes performances standards for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Customer needs
Input Definition: Requests from the customer for a service.

Control Name: Insurance requirements
Control Definition: The requirements stated by an insurance carrier as to the requirements and limitations with respect to personnel qualifications, scope and details of operations, materials to be used, and so forth.

Output Name: Aircraft records
Output Definition: The document recording an aircraft's history for maintenance reference.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Mission information
Input Definition: This includes, but is not limited to, flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Input Name: Weather information
Input Definition: Reports/forecasts received from national weather service or an independent contractor.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as Operational efficiency, Economics, Delays, Environmental impact, Labor relations, Geographical issues, and Vendor/contractor selection.

Output Name: Resource provision plan
Output Definition: Definition of resources necessary to support planned operations such as perform personnel training, perform aircraft MIE, perform aerial application operations.

Input Name: Aerial application operation resource provision status
Input Definition: Continuously updated information regarding the conditions that exist in the resource provision planning.

Control Name: Personal qualification requirements
Control Definition: Requirements for personnel to conduct specific aerial application operations. This also includes specifications on what kind of training is needed based on the analysis of job task requirements and personnel qualification requirements.

Output Name: Approved operator policies & procedures
Output Definition: The policies and procedures that ensure compliance with Federal Aviation Regulations (FAR) and other regulatory authority requirements approved by the FAA.

Input Name: ATC information
Input Definition: Information about ATC used for operational policy and procedure development.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Technical communication and reporting
Output Definition: Documents and dialog generated during the operations of an aerial application operator used for communicating with external organizations such as the FAA, EPA, state organizations, contractors, and others in the industry.

Input Name: Safety-related report
Input Definition: A safety-related report is a report of any safety-related concerns that became apparent during the conduct of an assigned mission.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Input Name: Work order
Input Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

Control Name: Customer requirements
Control Definition: Customer requirements include experience, training, and proficiency requirements beyond those required by applicable regulations.

Input Name: Training records
Input Definition: Training records are those documents that show required training has been completed.

Input Name: Maintenance records
Input Definition: The document that records the maintenance activities performed. Information, recorded from instruments or written by persons, describing the status, results, costs, profits, conformance to requirements, and so forth, of aerial aircraft maintenance.

Input Name: Operation records
Input Definition: Documents that record the historical performance of aerial application operations and contains information related to the performance of operations such as data necessary for analysis and regulatory reporting purposes and nonregulatory process deficiencies. The records include (1) the name and address of each person for whom aerial application aircraft services were provided; (2) the date of service; (3) the name and quantity of the material dispensed for each operation conducted; (4) the name, address, and certificate number of each pilot used in aerial application operations and the date that the pilot met the knowledge and skills requirements of 14 CFR 137.19 (e); and (5) the record must be kept for at least 12 months and made available for inspection by the administrator upon request.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

5.3.1 A1.1—Manage Aerial Application Functions.

This function controls and provides guidelines for aerial application operations during a period of changes in an operator's fleet size, composition, flight routes, or utilization. This function also provides directives and defines requirements and controls for the execution of other management functions to ensure their execution is consistent with the business changes and recognized deficiencies.

Input Name: Aerial application operation resource provision status
Input Definition: Continuously updated information regarding the conditions that exist in the resource provision planning.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as Operational efficiency, Economics, Delays, Environmental impact, Labor relations, Geographical issues, and Vendor/contractor selection.

Output Name: Operation planning directives
Output Definition: A set of policies/procedures/instructions that directs operation planning.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Training records
Input Definition: Training records are those documents that show required training has been completed.

Control Name: Insurance requirements
Control Definition: The requirements stated by an insurance carrier as to the requirements and limitations with respect to, for example, personnel qualifications, scope and details of operations, materials to be used, and so forth.

Input Name: Operation records
Input Definition: Documents that record the historical performance of aerial application operations and it contains information related to the performance of operations such as data necessary for analysis and regulatory reporting purposes and nonregulatory process deficiencies. The records include (1) the name and address of each person for whom aerial application aircraft services were provided; (2) the date of service; (3) the name and quantity of the material dispensed for each operation conducted; (4) the name, address, and certificate number of each pilot used in aerial application operations and the date that the pilot met the knowledge and skills requirements of 14 CFR 137.19 (e); and (5) the record must be kept for at least 12 months and made available for inspection by the administrator upon request.

Control Name: Personal qualification requirements
Control Definition: Requirements for personnel to conduct specific aerial application operations. This also includes specifications on what kind of training is needed based on the analysis of job task requirements and personnel qualification requirements.

Input Name: Maintenance records
Input Definition: The document that records the maintenance activities performed. Information, recorded from instruments or written by persons, describing the status, results, costs, profits, conformance to requirements, and so forth, of aerial aircraft maintenance.

Input Name: Information management status
Input Definition: Continuously updated information regarding the conditions that exist in the information management.

Input Name: Customer needs
Input Definition: Requests from the customer for a service.

Input Name: Safety awareness information
Input Definition: Information for safety awareness purpose.

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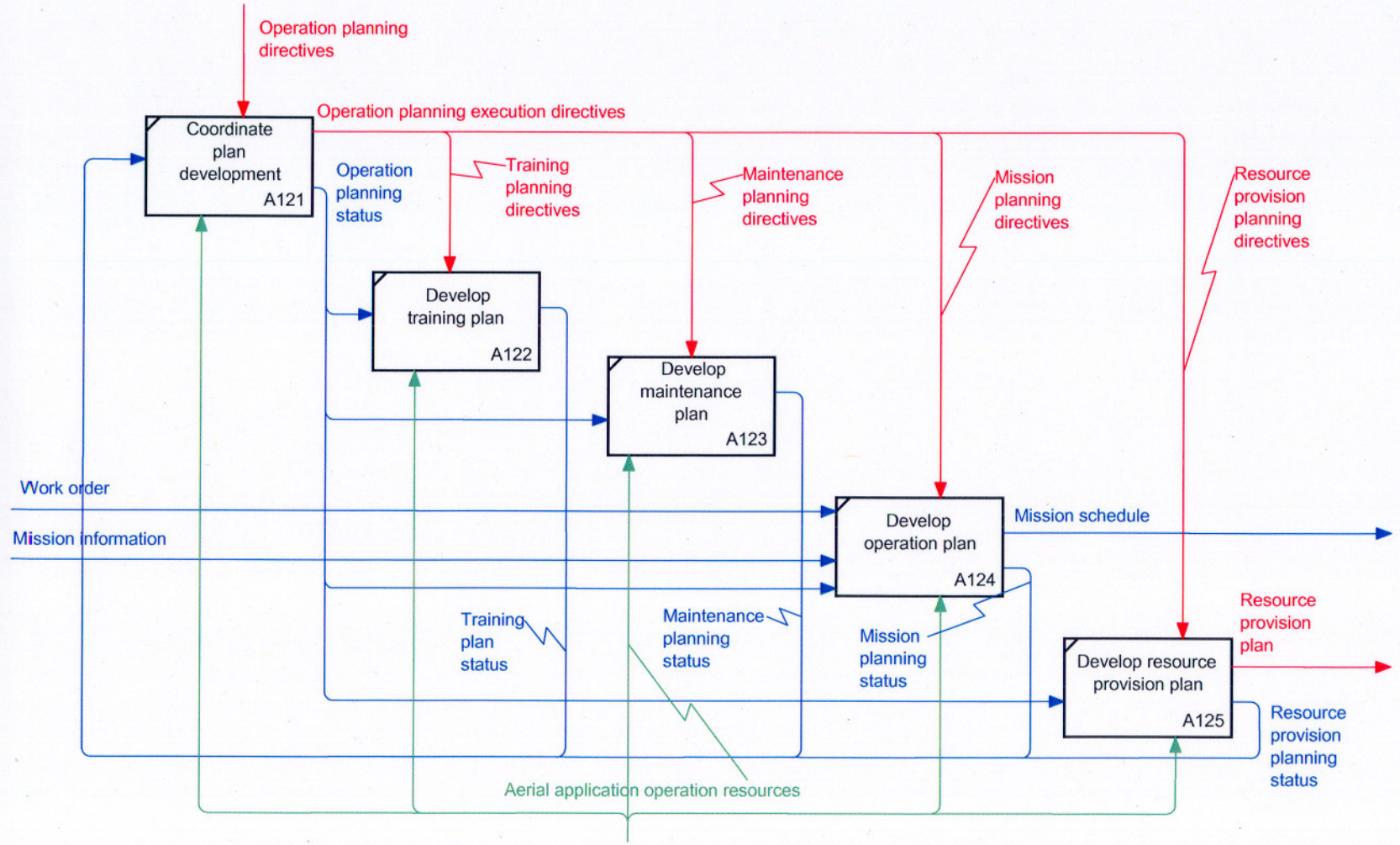

NODE:	TITLE:	NUMBER:
A1.2	Plan operations	

5.3.2 A1.2—Plan Operations.

This function produces plans for the execution of aerial application operations such as perform dispensing operation, perform ground operation, maintenance management plan, personnel training plan, and resource provision plan.

Input Name: Work order
Input Definition: A work order is a document that shows the details of the work to be accomplished during the assigned and is a record of what was actually accomplished.

Control Name: Operation planning directives
Control Definition: A set of policies/procedures/instructions that directs operation planning.

Output Name: Resource provision plan
Output Definition: Definition of resources necessary to support planned operations such as perform personnel training, perform aircraft maintenance, inspection and engineering and perform aerial application operations.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Mission information
Input Definition: This includes, but is not limited to, flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Output Name: Mission schedule
Output Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

5.3.2.1 A1.2.1—Coordinate Plan Development.

This function directs, schedules, and coordinates the following component activities of the development of operations plans in a manner consistent with the operator's management goals and regulations: develop training plan, develop maintenance plan, develop mission plan, and develop resource provision plan. It provides directives and defines requirements and controls in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Resource provision planning status
Input Definition: Continuously updated information regarding the conditions that exist during resource provision planning.

Control Name: Operation planning directives
Control Definition: A set of policies/procedures/instructions that directs operation planning.

Output Name: Operation planning execution directives
Output Definition: A set of policies/procedures/instructions that directs operations planning.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Operation planning status
Output Definition: Continuously updated information regarding the conditions that exist in the planning operations.

5.3.2.2 A1.2.2—Develop Training Plan.

This function develops the training plan based on the demand for training.

Input Name: Operation planning status
Input Definition: Continuously updated information regarding the conditions that exist in the planning operations.

Control Name: Training planning directives
Control Definition: A set of policies/procedures/instructions that directs training planning.

Output Name: Training plan status
Output Definition: Continuously updated information regarding the conditions that exist in the training planning.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.3.2.3 A1.2.3—Develop Maintenance Plan.

This function develops the maintenance plan based on the operator goals. This function also advices on the availability of resources to support planned directives.

Input Name: Operation planning status
Input Definition: Continuously updated information regarding the conditions that exist in the planning operations.

Control Name: Maintenance planning directives
Control Definition: A set of policies/procedures/instructions that directs maintenance planning.

Output Name: Maintenance planning status
Output Definition: Continuously updated information regarding the conditions that exist in the maintenance planning.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human

resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.3.2.4 A1.2.4—Develop Operation Plan.

This function develops the aerial application operation based on the operational information. This function also advices on the availability of resources to support planned activities.

Input Name: Work order
Input Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

Control Name: Mission planning directives
Control Definition: A set of policies/procedures/instructions that directs mission planning.

Output Name: Mission schedule
Output Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Mission information
Input Definition: This includes, but is not limited to, flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Output Name: Mission planning status
Output Definition: Continuously updated information regarding the conditions that exist during the mission planning.

Input Name: Operation planning status
Input Definition: Continuously updated information regarding the conditions that exist in the planning operations.

5.3.2.5 A1.2.5—Develop Resource Provision Plan.

This function develops the resource provision plan that identifies the resource requirements to support planned activities such as facilities, personnel, tooling, required aircraft, and materials.

Input Name: Operation planning status
Input Definition: Continuously updated information regarding the conditions that exist in the planning operations.

Control Name: Resource provision planning directives
Control Definition: A set of policies/procedures/instructions that directs resource provision planning.

Output Name: Resource provision plan
Output Definition: Definition of resources necessary to support planned operations such as perform personnel training, perform aircraft maintenance, inspection and engineering, and perform aerial application operations.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Resource provision planning status
Output Definition: Continuously updated information regarding the conditions that exist during resource provision planning.

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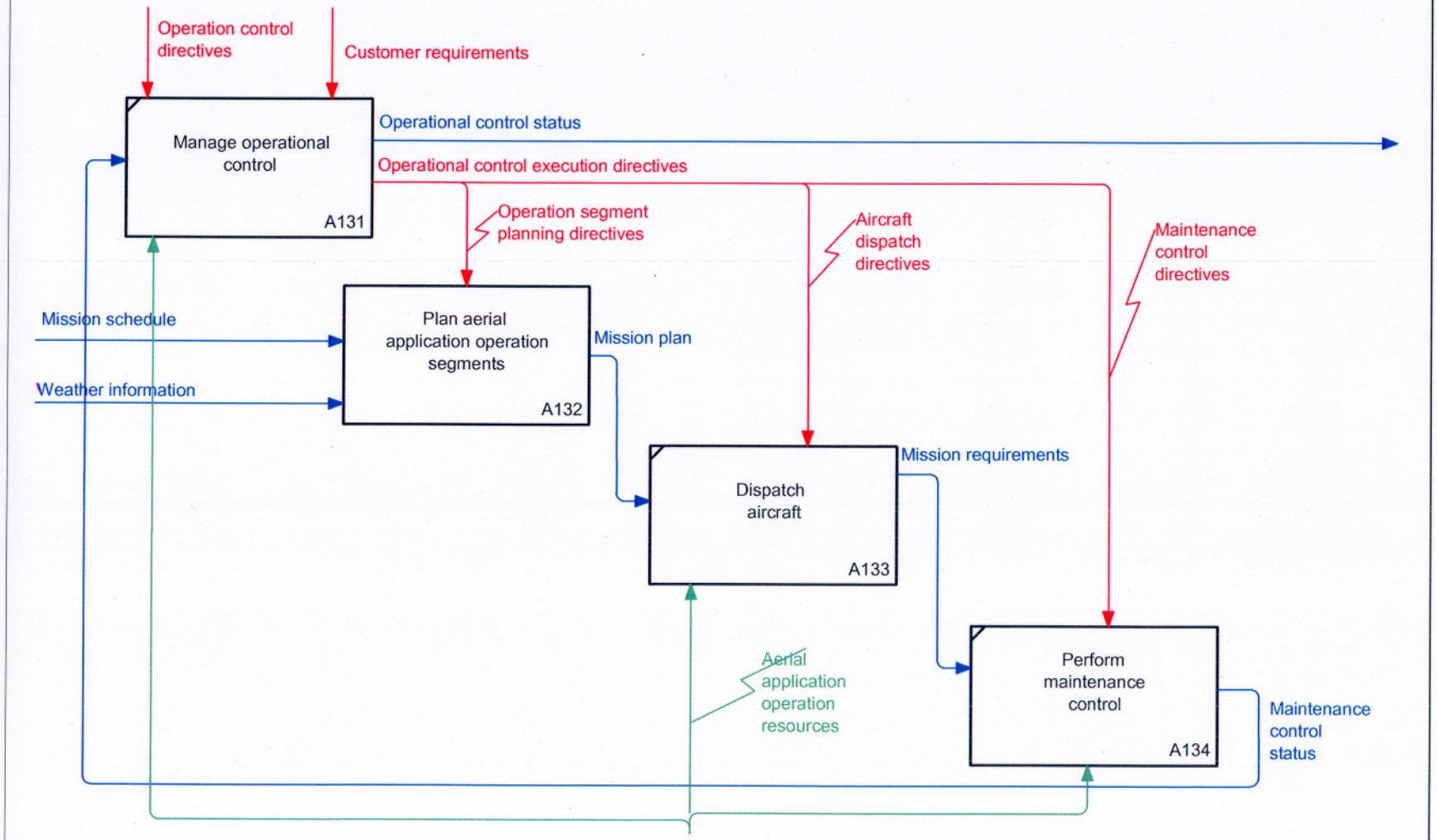

NODE:	TITLE:	NUMBER:
A1.3	Perform operational control	

5.3.3 A1.3—Perform Operational Control.

Operational control, with respect to an aerial application operator, means the exercise of authority over initiating, conducting, or terminating a scheduled operation. Information that needs to be collected and disseminated to plan and conduct an operation safely includes, but is not limited to, the following: enroute and terminal weather conditions, fuel requirements, and navigation.

Input Name: Mission schedule
Input Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

Control Name: Customer requirements
Control Definition: Customer requirements include experience, training, and proficiency requirements beyond those required by applicable regulations.

Output Name: Operational control status
Output Definition: Continuously updated information regarding the conditions that exist in the operation control.

Input Name: Weather information
Reports/forecasts received from national weather service or an independent contractor.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Operation control directives
Control Definition: A set of policies/procedures/instructions that directs operation control.

5.3.3.1 A1.3.1—Manage Operational Control.

This function directs, schedules, and coordinates the following component activities of operational control: Dispatch aircraft and Perform maintenance control. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Maintenance control status
Input Definition: Continuously updated information regarding the conditions that exist in the maintenance control.

Control Name: Operation control directives
Control Definition: A set of policies/procedures/instructions that directs operation control.

Output Name: Operational control status
Output Definition: Continuously updated information regarding the conditions that exist in the operation control.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Customer requirements
Control Definition: Customer requirements include experience, training, and proficiency requirements beyond those required by applicable regulations.

Output Name: Operational control execution directives
Output Definition: A set of policies/procedures/instructions that directs operations planning.

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			RECOMMENDED			
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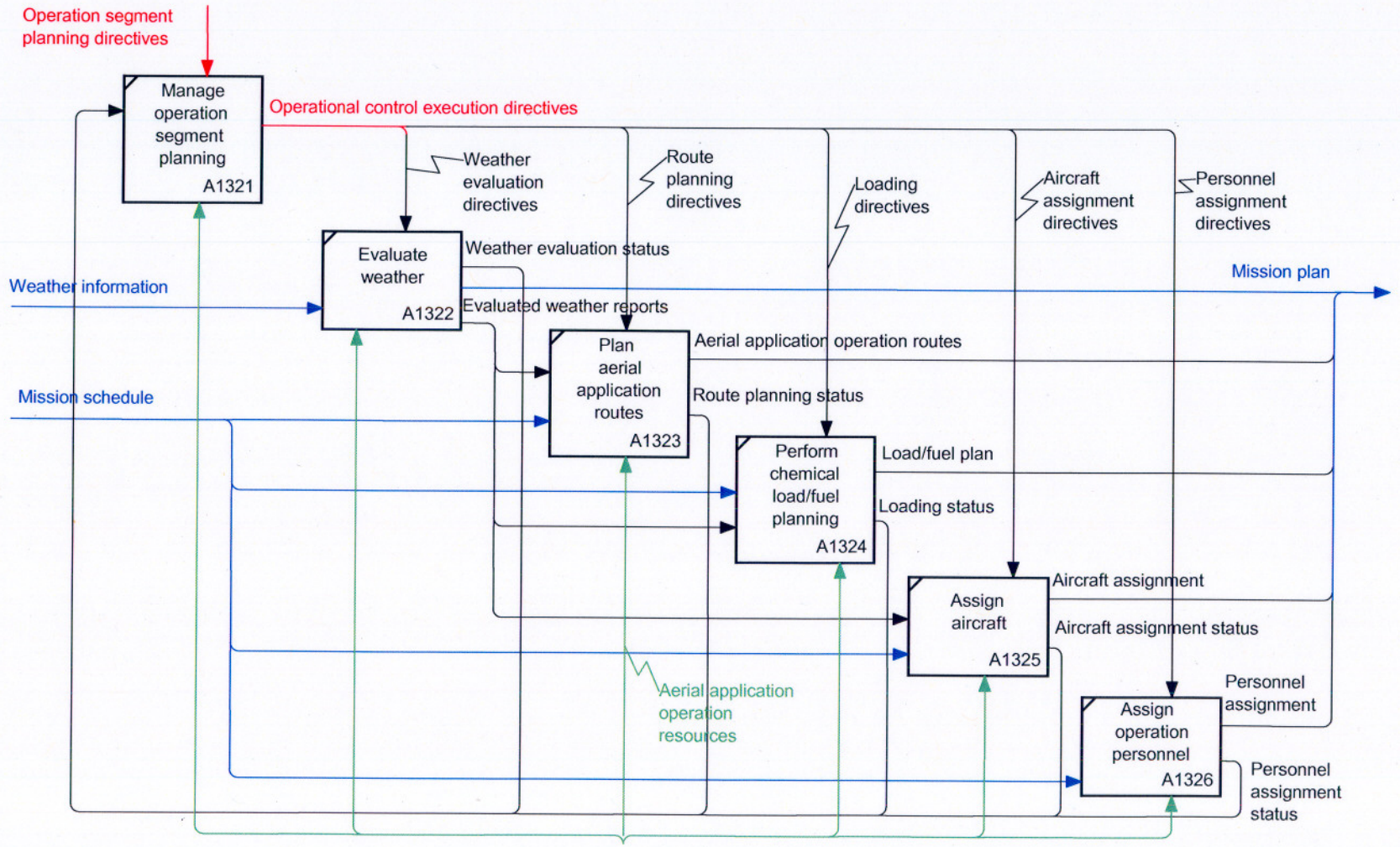

NODE:	TITLE:	NUMBER:
A1.3.2	Plan aerial application operation segments	

5.3.3.2 A1.3.2—Plan Aerial Application Operation Segments.

This function conducts preflight planning to ensure that the aerial application operations are conducted according to the mission plan.

Input Name: Mission schedule
Input Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

Control Name: Operation segment planning directives
Control Definition: A set of policies/procedures/instructions that directs operations segment planning.

Output Name: Mission plan
Output Definition: The instructions given by the planning section to the section responsible for selecting and dispatching the required aircraft.

Input Name: Weather information
Input Definition: Reports/forecasts received from national weather service or an independent contractor.

5.3.3.2.1 A1.3.2.1—Manage Operation Segment Planning.

This function directs, schedules, and coordinates the following component activities of operational control: Evaluate weather, Plan aerial application routes, Perform chemical load/fuel planning, Assign aircraft and Assign crew members. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Personnel assignment status
Input Definition: Continuously updated information regarding the conditions that exist in the personnel assignment.

Control Name: Operation segment planning directives
Control Definition: A set of policies/procedures/instructions that directs operations segment planning.

Output Name: Operational control execution directives
Output Definition: A set of policies/procedures/instructions that directs operations planning.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.3.3.2.2 A1.3.2.2—Evaluate Weather.

This function collects, interprets, and disseminates weather information.

Input Name: Weather information
Input Definition: Reports/forecasts received from national weather service or an independent contractor.

Control Name: Weather evaluation directives
Control Definition: A set of policies/procedures/instructions that directs weather evaluation.

Output Name: Weather evaluation status
Output Definition: Continuously updated information regarding the conditions that exist in weather evaluation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Mission plan
Output Definition: The instructions given by the planning section to the section responsible for selecting and dispatching the required aircraft.

Output Name: Evaluated weather reports
Output Definition: The evaluated weather reports as they pertain to this operation are provided by each activity with the need for this information.

5.3.3.2.3 A1.3.2.3—Plan Aerial Application Routes.

This function considers all factors such as wind, temperature, and aircraft performance data to plan the route of aerial application operation for specific aircraft.

Input Name: Evaluated weather reports
Input Definition: The evaluated weather reports as they pertain to this operation are provided by each activity with the need for this information.

Control Name: Route planning directives
Control Definition: A set of policies/procedures/instructions that directs route planning.

Output Name: Aerial application operation routes
Output Definition: The routes planned for the mission after consideration to terrain, weather, aircraft performance, and mission requirements.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Mission schedule
Input Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

Output Name: Route planning status
Output Definition: Continuously updated information regarding the conditions that exist in route planning.

5.3.3.2.4 A1.3.2.4—Perform Chemical Load/Fuel Planning.

This function plans chemical and fuel loading before the aerial application based on the operational requirements.

Input Name: Mission schedule
Input Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

Control Name: Loading directives
Control Definition: A set of policies/procedures/instructions that directs chemical loading.

Output Name: Load/fuel plan
Output Definition: The portion of the mission plan showing fuel requirements including a reserve and the amount of payload that can be carried.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Evaluated weather reports
Input Definition: The evaluated weather reports as they pertain to this operation are provided by each activity with the need for this information.

Output Name: Loading status
Output Definition: Continuously updated information regarding the conditions that exist in chemical loading.

5.3.3.2.5 A1.3.2.5—Assign Aircraft.

This function considers and determines the specific aircraft that should be assigned based on the operational requirement.

Input Name: Evaluated weather reports
Input Definition: The evaluated weather reports as they pertain to this operation are provided by each activity with the need for this information.

Control Name: Aircraft assignment directives
Control Definition: A set of policies/procedures/instructions that directs aircraft assignment.

Output Name: Aircraft assignment
Output Definition: Assignment of aircraft for carrying out certain aerial application operations.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Mission schedule
Input Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

Output Name: Aircraft assignment status
Output Definition: Continuously updated information regarding the conditions that exist in the aircraft assignment.

5.3.3.2.6 A1.3.2.6—Assign Operation Personnel.

Operational personnel means a person(s) assigned a duty to be performed in an aircraft during the aerial application operation. This function schedules and assigns personnel to perform specific operational tasks.

Input Name: Mission schedule
Input Definition: The planned schedule of events made up by the planning section for directing the activities of the operational section.

Control Name: Personnel assignment directives
Control Definition: A set of policies/procedures/instructions that directs personnel assignment.

Output Name: Personnel assignment
Output Definition: Existing employees to be assigned new tasks.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Personnel assignment status
Output Definition: Continuously updated information regarding the conditions that exist in the personnel assignment.

5.3.3.3 A1.3.3—Dispatch Aircraft.

This function schedules, assigns, and releases aircraft to perform specific tasks as per the mission plan.

Input Name: Mission plan
Input Definition: The instructions given by the planning section to the section responsible for selecting and dispatching the required aircraft.

Control Name: Aircraft dispatch directives
Control Definition: A set of policies/procedures/instructions that directs aircraft dispatch.

Output Name: Mission requirements
Output Definition: A listing of the maintenance requirements for aircraft to be utilized on the mission.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment,

tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.3.3.4 A1.3.4—Perform Maintenance Control.

This function provides controls on the airworthiness of an aircraft and issues the maintenance release to permit aircraft to be dispatched.

Input Name: Mission requirements
Input Definition: A listing of the maintenance requirements for aircraft to be utilized on the mission.

Control Name: Maintenance control directives
Control Definition: A set of policies/procedures/instructions that directs maintenance control.

Output Name: Maintenance control status
Output Definition: Continuously updated information regarding the conditions that exist in the maintenance control.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

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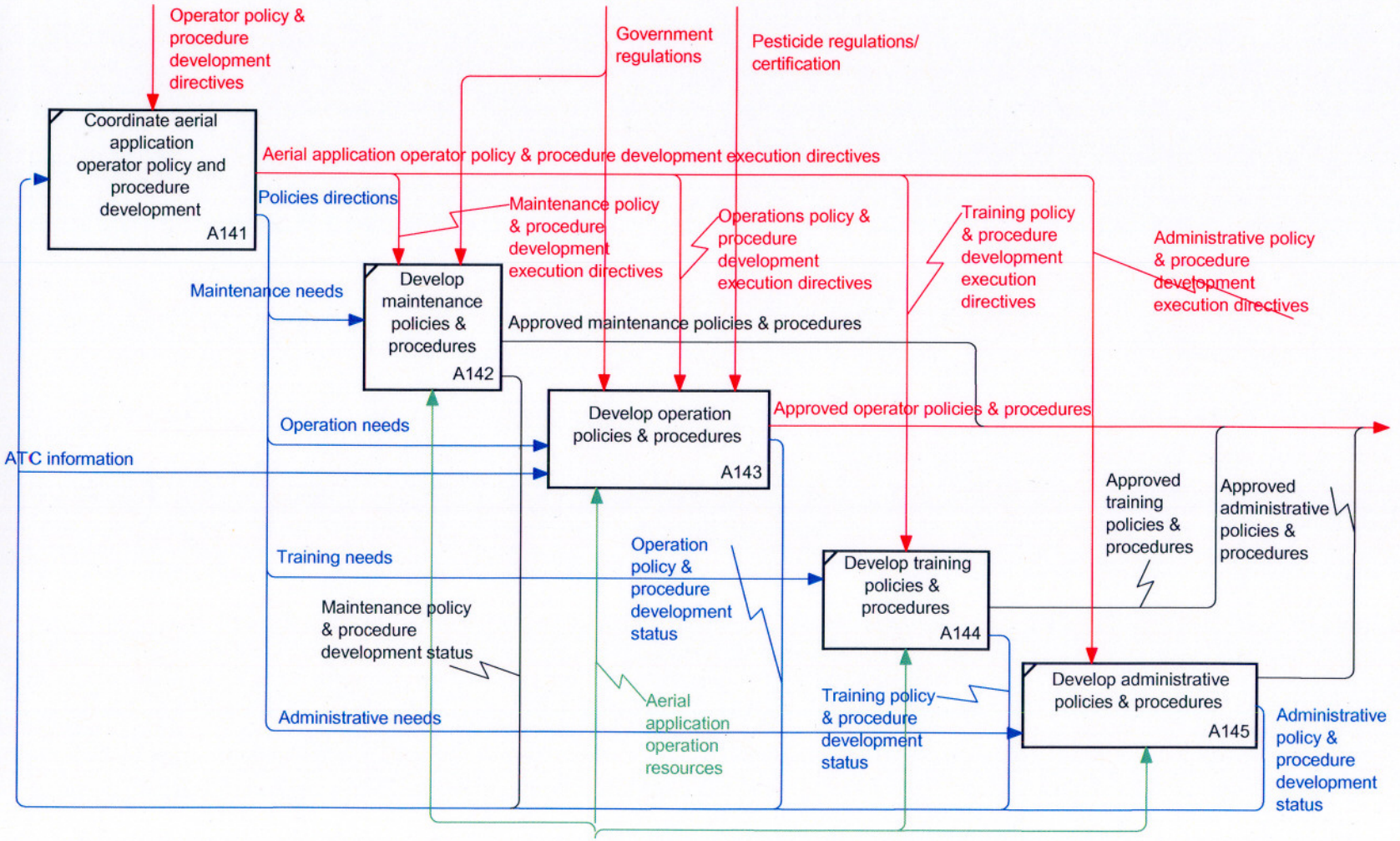

NODE:	TITLE:	NUMBER:
A1.4	Develop operator policies and procedures	

5.3.4 A1.4—Develop Operator Policies and Procedures.

This function develops or revises aerial operation policies and procedures related to operations, maintenance, training, resource provision, and administration to regulate the execution of aerial application operations.

Input Name: ATC information
Input Definition: Information about ATC used for operational policy and procedure development.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Approved operator policies & procedures
Output Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Operator policy & procedure development directives
Control Definition: A set of policies/procedures/instructions that directs operator policy and procedure development.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

5.3.4.1 A1.4.1—Coordinate Aerial Application Operator Policy and Procedure Development.

This function directs, schedules, and coordinates the following component activities of operator policy & procedure development: Develop maintenance policies & procedures, Develop operation policies & procedures, Develop training policies & procedures, and Develop administrative policies & procedures. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Administrative policy & procedure development status
Input Definition: Continuously updated information regarding the conditions that exist in the administrative policy & procedure development.

Control Name: Operator policy & procedure development directives
Control Definition: A set of policies/procedures/instructions that directs operator policy & procedure development.

Output Name: Maintenance policy & procedure development execution directives
Output Definition: A set of policies/procedures/instructions that directs maintenance policy & procedure development.

Output Name: Policies directions
Output Definition: Directions regarding developing operator policies and procedures.

5.3.4.2 A1.4.2—Develop Maintenance Policies & Procedures.

This function provides maintenance management controls by providing standardized policies and procedures.
Control Name: Maintenance policy & procedure development execution directives
Control Definition: A set of policies/procedures/instructions that directs maintenance policy & procedure development.

Output Name: Approved maintenance policies & procedures
Output Definition: The maintenance policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components, include but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment,

tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Maintenance needs
Output Definition: To develop the policies/procedures regulating the maintenance of the aircraft.

Output Name: Maintenance policy & procedure development status
Output Definition: Continuously updated information regarding the conditions that exist in the maintenance policy & procedure development.

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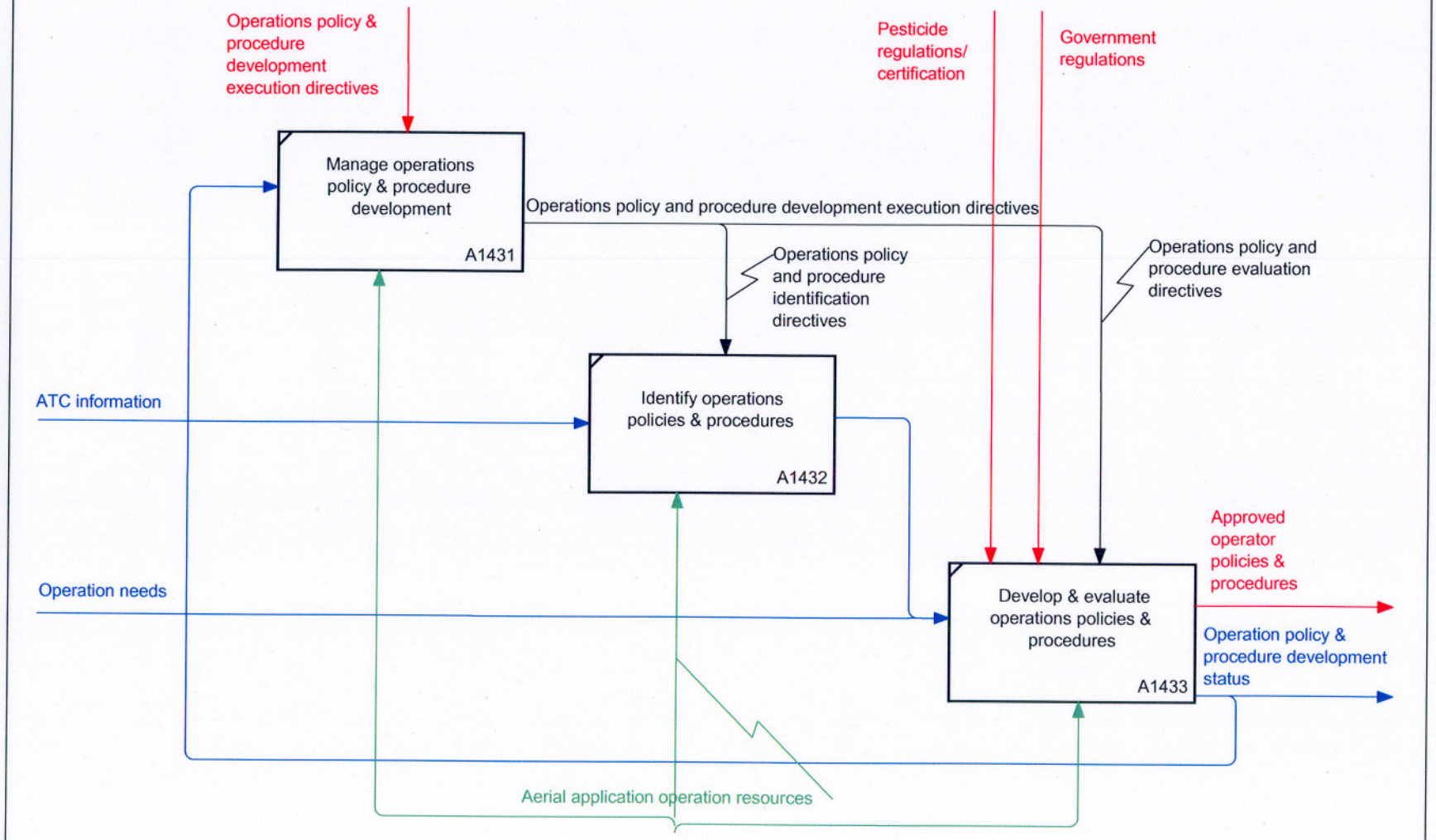

NODE:	TITLE:	NUMBER:
A1.4.3	Develop operation policies & procedures	

5.3.4.3 A1.4.3—Develop Operation Policies and Procedures.

This function provides operations management controls by providing standardized policies and procedures. All operational policies and procedures are subject to FAA approval.

Input Name: ATC information
Input Definition: Information about ATC used for operational policy and procedure development.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Approved operator policies & procedures
Output Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Operation needs
Output Definition: To develop the policies/procedures regulating the operation of the aircraft.

Control Name: Operations policy & procedure development execution directives
Control Definition: A set of policies/procedures/instructions that directs operations policy and procedure development.

Control Name: Pesticide regulations/certification

Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Output Name: Operation policy & procedure development status
Output Definition: Continuously updated information regarding the conditions that exist in operations policy and procedure development.

5.3.4.3.1 A1.4.3.1—Manage Operations Policy & Procedure Development.

This function directs, schedules, and coordinates the following component activities of operational policy and procedure development: Identify operational policies and procedures, and Develop & evaluate operations policies & procedures. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any relevant regulations for these activities.

Control Name: Operations policy & procedure development execution directives
Control Definition: A set of policies/procedures/instructions that directs operations policy and procedure development.

Input Name: Operations policy & procedure development status
Input Definition: Continuously updated information regarding the conditions that exist in operations policy and procedure development.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Operations policy and procedure development execution directives
Output Definition: A set of policies/procedures/instructions that directs operations policy and procedure development.

5.3.4.3.2 A1.4.3.2—Identify Operations Policies & Procedures.

This function analyzes the management control of the aerial application operations and generates the necessary operational needs to address policy issues to include aircraft and personnel.

Control Name: Operations policy and procedure identification directives
Control Definition: A set of policies/procedures/instructions that directs operations policy and procedure identification.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: ATC information
Input Definition: Information about ATC used for operational policy and procedure development.

Output Name: Operation needs
Output Definition: To develop the policies/procedures regulating the operation of the aircraft.

5.3.4.3.3 A1.4.3.3—Develop and Evaluate Operations Policies and Procedures.

This function assesses the operational needs of aerial application operations and including publishing and disseminating, the policies and procedures. All operational policies and procedures are subject to FAA approval.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Output Name: Approved operator policies & procedures
Output Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Operation needs
Input Definition: To develop the policies/procedures regulating the operation of the aircraft.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Operations policy & procedure development status
Output Definition: Continuously updated information regarding the conditions that exist in the operations policy and procedure development.

Control Name: Operations policy and procedure evaluation directives
Control Definition: A set of policies/procedures/instructions that directs operations policy and procedure evaluation.

5.3.4.4 A1.4.4—Develop Training Policies & Procedures.

This function provides personnel training controls by providing standardized policies and procedures.

Control Name: Training policy & procedure development execution directives
Control Definition: A set of policies/procedures/instructions that directs training policy and procedure evaluation.

Output Name: Approved training policies & procedures
Output Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Training needs
Output Definition: To develop the policies/procedures regulating the aircraft training.

Output Name: Training policy & procedure development status
Output Definition: Continuously updated information regarding the conditions that exist in the training policy and procedure development.

5.3.4.5 A1.4.5—Develop Administrative Policies & Procedures.

This function provides administrative controls by providing standardized policies and procedures such as dress code leave policy, work hours, pay and benefits, and so forth.

Control Name: Administrative policy & procedure development execution directives
Control Definition: A set of policies/procedures/instructions that directs administrative policy and procedure evaluation.

Output Name: Approved administrative policies & procedures
Output Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment,

tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Administrative needs
Output Definition: To develop the policies/procedures regulating the aircraft administration.

Output Name: Administrative policy & procedure development status
Output Definition: Continuously updated information regarding the conditions that exist in the administrative policy and procedure development.

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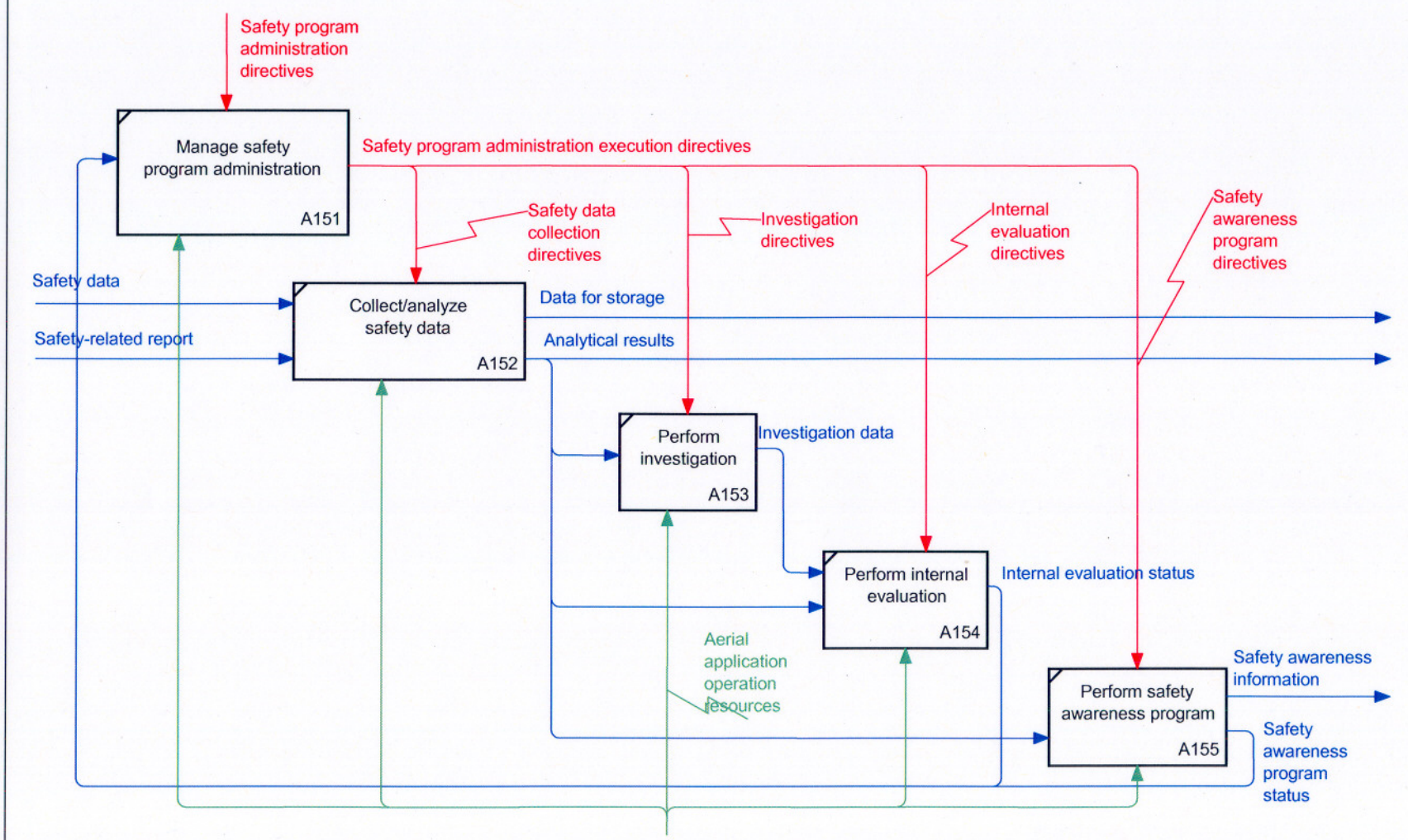

NODE:	TITLE:	NUMBER:
A1.5	Administer safety program	

5.3.5 A1.5—Administer Safety Program.

This function collects and analyzes information for dissemination within the aerial application operator with the purpose of identification and mitigation of risks.

Input Name: Safety-related report
Input Definition: A safety-related report is a report of any safety-related concerns that became apparent during the conduct of an assigned mission.

Control Name: Safety program administration directives
Control Definition: A set of policies/procedures/instructions that directs safety program administration.

Output Name: Safety awareness information
Output Definition: Information for safety awareness purpose.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Output Name: Data for storage
Output Definition: Data sent to a repository for storage.

Output Name: Analytical results
Output Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

5.3.5.1 A1.5.1—Manage Safety Program Administration.

This function directs, schedules, and coordinates the following component activities of safety program administration in a manner consistent with company's management goals: collect/analyze safety data, perform investigation, perform internal evaluation and perform safety awareness program. It provides directives and defines requirements and controls in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Safety awareness program status
Input Definition: Continuously updated information regarding the conditions that exist in the safety awareness program.

Control Name: Safety program administration directives
Control Definition: A set of policies/procedures/instructions that directs safety program administration.

Output Name: Safety data collection directives
Output Definition: A set of policies/procedures/instructions that directs safety data collection.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.3.5.2 A1.5.2—Collect/Analyze Safety Data.

This function collects, and analyzes information for dissemination within the aerial application operator for the purpose of identification and mitigation of risks.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Safety data collection directives
Control Definition: A set of policies/procedures/instructions that directs safety program administration.

Output Name: Data for storage
Output Definition: Data sent to a repository for storage.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Safety related report
Input Definition: A safety-related report is a report of any safety-related concerns that became apparent during the conduct of an assigned mission.

Output Name: Analytical results
Output Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

5.3.5.3 A1.5.3—Perform Investigation.

This function involves the fact-findings, interviews, and cause and effect analysis of circumstance surrounding an incident, accident, or failure. As the result of this, the root cause is determined and recommendations are issued.

Input Name: Analytical results
Input Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

Control Name: Investigation directives
Control Definition: A set of policies/procedures/instructions that directs the investigation.

Output Name: Investigation data
Output Definition: The data collected through the investigation that is forwarded for evaluation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.3.5.4 A1.5.4—Perform Internal Evaluation.

This function uses a systematic approach to identify the operator's deficiencies or needs to be improved. This can be accomplished by the following: observations, records audit, and interviewing personnel.

Input Name: Investigation data
Input Definition: The data collected through the investigation that is forwarded for evaluation.

Control Name: Internal evaluation directives
Control Definition: A set of policies/procedures/instructions that directs internal evaluation.

Output Name: Internal evaluation status
Output Definition: Continuously updated information regarding the conditions that exist during the internal evaluation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Analytical results
Input Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

5.3.5.5 A1.5.5—Perform Safety Awareness Program.

This function serves to disseminate safety communication such as safety bulletins, recommendations, lessons learned and posters.

Input Name: Analytical results
Input Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

Control Name: Safety awareness program directives
Control Definition: A set of policies/procedures/instructions that directs the safety awareness program.

Output Name: Safety awareness information
Output Definition: Information for safety awareness purpose.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Safety awareness program status
Output Definition: Continuously updated information regarding the conditions that exist in the safety awareness program.

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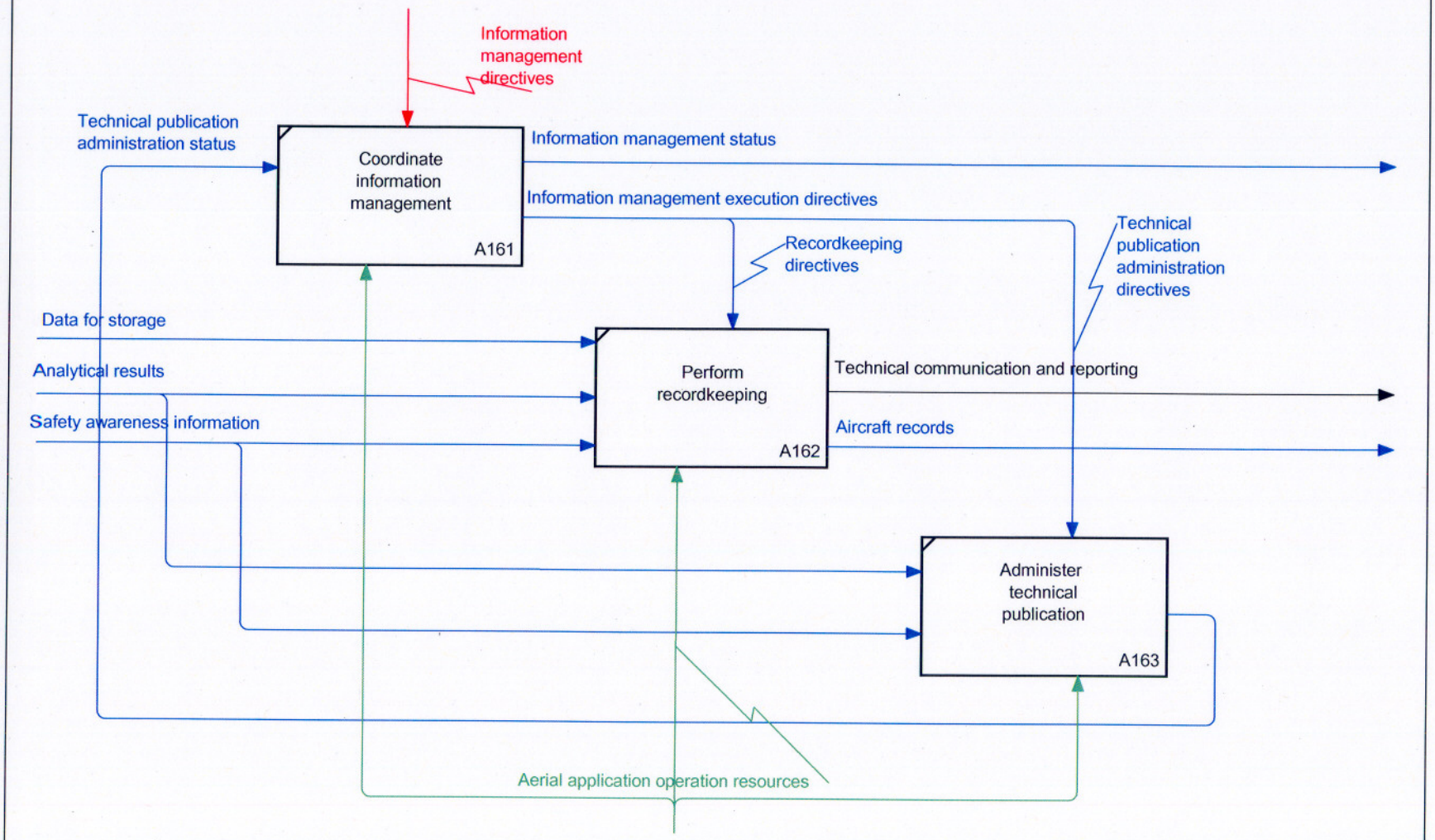

NODE:	TITLE:	NUMBER:
A1.6	Perform information management	

09

5.3.6 A1.6—Perform Information Management.

This is the information management function that collects, organizes, stores, and reports or disseminates information within the aerial application operator or maintains the records generated during the aerial application operations for reporting to the FAA or other third parties.

Input Name: Analytical results
Input Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

Control Name: Information management directives
Control Definition: A set of policies/procedures/instructions that directs the information management.

Output Name: Aircraft records
Output Definition: The document recording an aircraft's history for maintenance reference.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Data for storage
Input Definition: Data sent to a repository for storage

Output Name: Technical communication and reporting
Output Definition: Documents and dialog generated during the operations of an aerial application operator used for communicating with external organizations such as the FAA, EPA, state organizations, contractors, and others in the industry.

Input Name: Safety awareness information
Input Definition: Information for safety awareness purpose.

Output Name: Information management status
Output Definition: Continuously updated information regarding the conditions that exist in the information management.

5.3.6.1 A1.6.1—Coordinate Information Management.

This function directs, schedules, and coordinates the following component activities of information management: Perform record keeping and Administer technical publication. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Technical publication administration status
Input Definition: Continuously updated information regarding the conditions that exist in the technical publication administration.

Control Name: Information management directives
Control Definition: A set of policies/procedures/instructions that directs the information management.

Output Name: Information management status
Output Definition: Continuously updated information regarding the conditions that exist in the information management.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Information management execution directives
Output Definition: A set of policies/procedures/instructions that directs the execution of information management.

5.3.6.2 A1.6.2—Perform Record-Keeping.

This function stores raw data available for query/retrieval for analytical/management functions.

Input Name: Data for storage
Input Definition: Data sent to a repository for storage.

Control Name: Record-keeping directives
Control Definition: A set of policies/procedures/instructions that directs record-keeping.

Output Name: Technical communication and reporting
Output Definition: Documents and dialog generated during the operations of an aerial application operator used for communicating with external organizations such as the FAA, EPA, state organizations, contractors, and others in the industry.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Analytical results
Input Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

Output Name: Aircraft records
Output Definition: The document recording an aircraft's history for maintenance reference.

Input Name: Safety awareness information
Input Definition: Information for safety awareness purpose.

5.3.6.3 A1.6.3—Administer Technical Publication.

Input Name: Analytical results
Input Definition: Information converted from data with the purpose of contributing to knowledge base, i.e., trend analysis, data interpretation, and statistical analysis.

Control Name: Technical publication administration directives
Control Definition: A set of policies/procedures/instructions that directs the technical publication administration.

Output Name: Technical publication administration status
Output Definition: Continuously updated information regarding the conditions that exist in the technical publication administration.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Safety awareness information
Input Definition: Information for safety awareness purpose.

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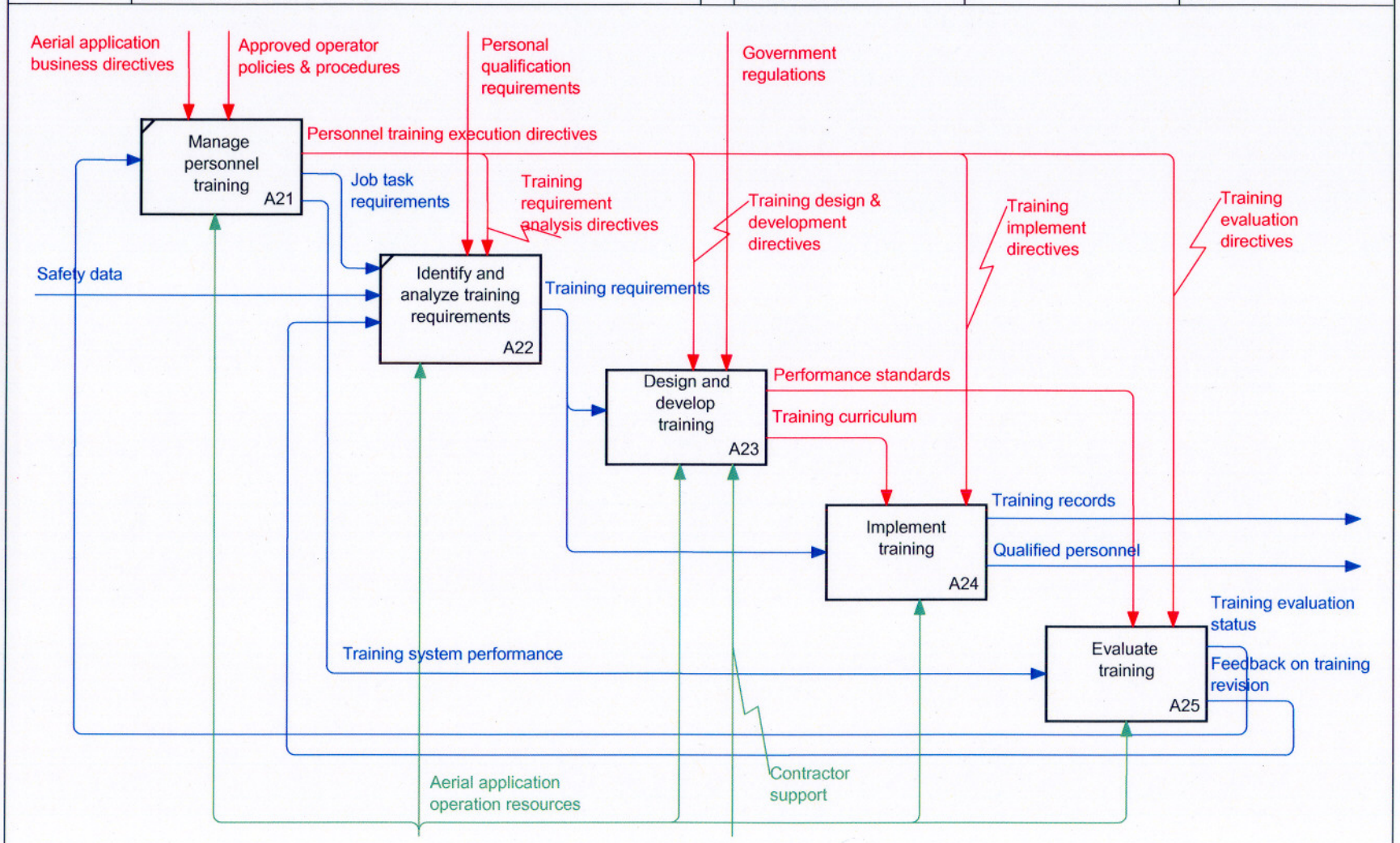
	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 9/8/2004	DRAFT			
			RECOMMENDED			
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION			A0



NODE:	TITLE:	NUMBER:
A2	Perform personnel training	

5.4 A2—PERFORM PERSONNEL TRAINING.

This function plans, designs, implements, and evaluates an array of procedures, methods, and practices to improve workforce capabilities to meet mission/workload requirements and increase/maintain individual employee knowledge, skills, and abilities.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Personal qualification requirements
Control Definition: Requirements for personnel to conduct specific aerial application operations. This also includes specifications on what kind of training is needed based on the analysis of job task requirements and personnel qualification requirements.

Output Name: Training records
Output Definition: Training records are those documents that show required training has been completed.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

Output Name: Qualified personnel
Output Definition: Persons qualified for conducting certain tasks.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Control Name: Government Regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

5.4.1 A2.1—Manage Personnel Training.

This function directs, schedules, and coordinates the following component activities of personnel training: Identify and analyze training requirements, Design and develop training, Implement training and Evaluate training. It provides directives, defines requirements and controls for the execution of those activities and also checks that the execution is done in accordance with company policies and procedures and any required regulations for the activities.

Input Name: Training evaluation status
Input Definition: Continuously updated information regarding the conditions that exist in the training evaluation.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

Output Name: Personnel training execution directives
Output Definition: A set of policies/procedures/instructions that directs execution of personal training.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human

resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Job task requirements
Output Definition: A description of the job, including its contents, requirements, and goals.

Output Name: Training system performance
Output Definition: Characteristics of training system generated from the real-time reports from each training activities.

5.4.2 A2.2—Identify and Analyze Training Requirements.

This function performs job task analysis to identify and analyze the skills and knowledge, which requires training based on job task requirements and personnel performance and qualification.

Input Name: Job task requirements
Input Definition: A description of the job, including its contents, requirements, and goals.

Control Name: Personal qualification requirements
Control Definition: Requirements for personnel to conduct specific aerial application operations. This also includes specifications on what kind of training is needed based on the analysis of job task requirements and personnel qualification requirements.

Output Name: Training requirements
Output Definition: Specifications on what kind of training is needed based on the analysis of the job task requirement and personnel qualification requirement.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human

resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Training requirement analysis directives
Control Definition: A set of policies/procedures/instructions that directs training requirement analysis.

Input Name: Feedback on training revision
Input Definition: The revisions recommended by training evaluation that are sent back for analysis and possible inclusion in new training requirements.

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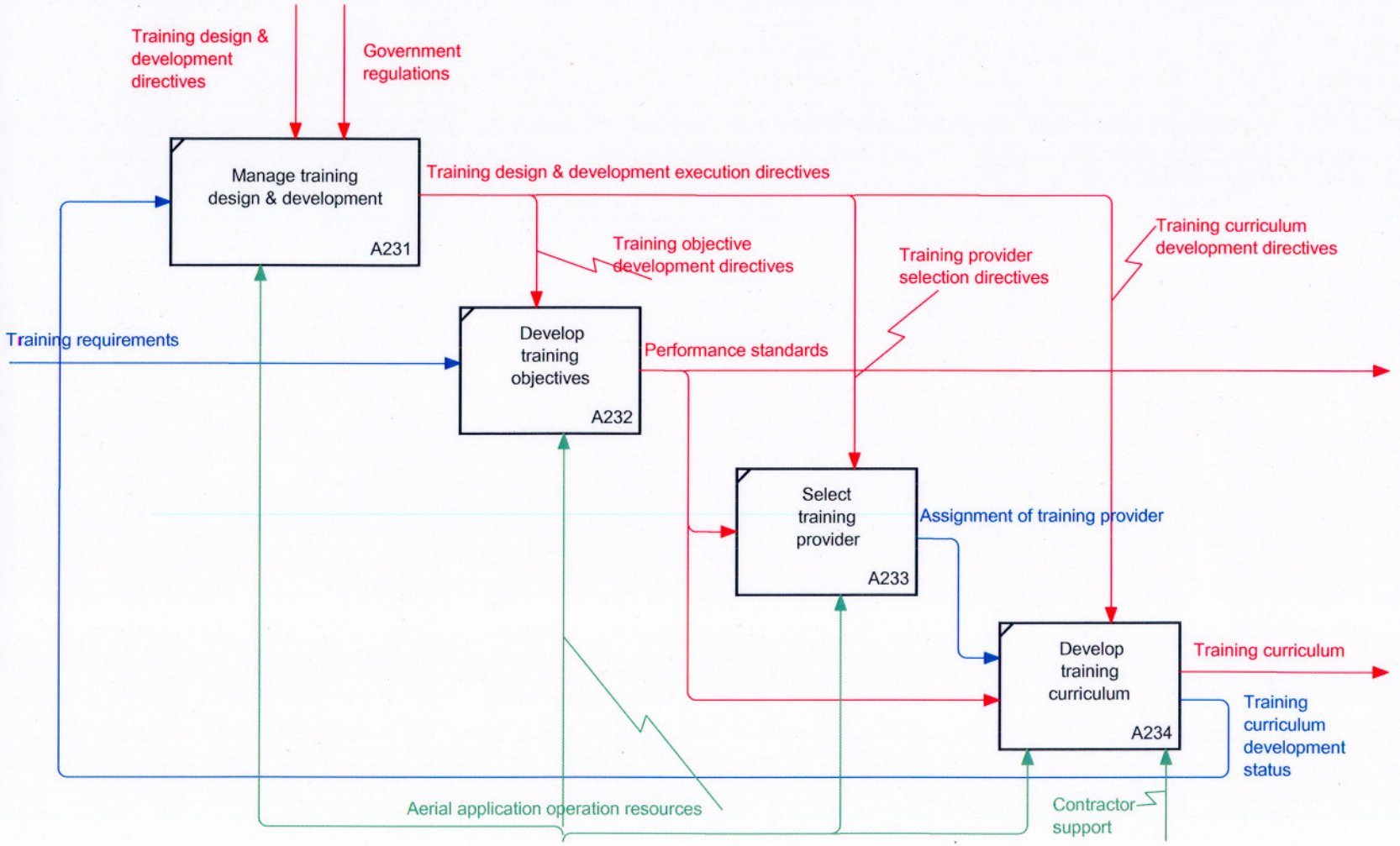
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION			A2



NODE:	TITLE:	NUMBER:
A2.3	Design and develop training	

5.4.3 A2.3—Design and Develop Training.

This function designs, develops, and sequences learning objectives and qualification standards and also creates training materials to conduct training. This function also identifies and determines the most appropriate and cost-effective method for developing or obtaining the training such as the use of internal staff and facilities.

Input Name: Training requirements
Input Definition: Specifications on what kind of training is needed based on the analysis of the job task requirement and personnel qualification requirement.

Control Name: Training design & development directives
Control Definition: A set of policies/procedures/instructions that directs training design and development.

Output Name: Performance standards
Output Definition: The specifications of the performance personnel that should be achieved after being trained.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Training curriculum
Output Definition: The topics and methods of training that is required to be implemented during training.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

5.4.3.1 A2.3.1—Manage Training Design & Development.

This function directs, schedules, and coordinates the following component activities of training design and development: Develop training objectives, Select training provider, and Develop training curriculum. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Training curriculum development status
Input Definition: Continuously updated information regarding the conditions that exist in the training curriculum development.

Control Name: Training design & development directives
Control Definition: A set of policies/procedures/instructions that directs Training design & development.

Output Name: Training design & development execution directives
Output Definition: A set of policies/procedures/instructions that directs execution of training design & development.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

5.4.3.2 A2.3.2—Develop Training Objectives.

This function clarifies the target of the training and the skill or performance level personnel should have after the training.

Input Name: Training requirements

Input Definition: Specifications on what kind of training is needed based on the analysis of the job task requirement and personnel qualification requirement.

Control Name: Training objective development directives
Control Definition: A set of policies/procedures/instructions that directs Training objective development.

Output Name: Performance standards
Output Definition: The specifications of the performance personnel that should be achieved after being trained.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.4.3.3 A2.3.3—Select Training Provider.

This function selects the most appropriate and cost-effective training provider based on the training requirements.

Input Name: Performance standards
Input Definition: The specifications of the performance personnel that should be achieved after being trained.

Control Name: Training provider selection directives
Control Definition: A set of policies/procedures/instructions that directs training provider selection.

Output Name: Assignment of training provider
Output Definition: Assignment of training provider to provide training for the personnel.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial

application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.4.3.4 A2.3.4—Develop Training Curriculum.

This function creates a complete training agenda specific to an aircraft, a position (operation personnel or maintenance technician), or a category of training (new or experienced hires).

Input Name: Assignment of training provider
Input Definition: Assignment of the training provider to provide training for the personnel.

Control Name: Training curriculum development directives
Control Definition: A set of policies/procedures/instructions that directs training curriculum development.

Output Name: Training curriculum
Output Definition: The topics and methods of training that is required to be implemented during training.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Performance standards
Input Definition: The specifications of the performance personnel that should be achieved after being trained.

Output Name: Training curriculum development status
Output Definition: Continuously updated information regarding the conditions that exist in the training curriculum development.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

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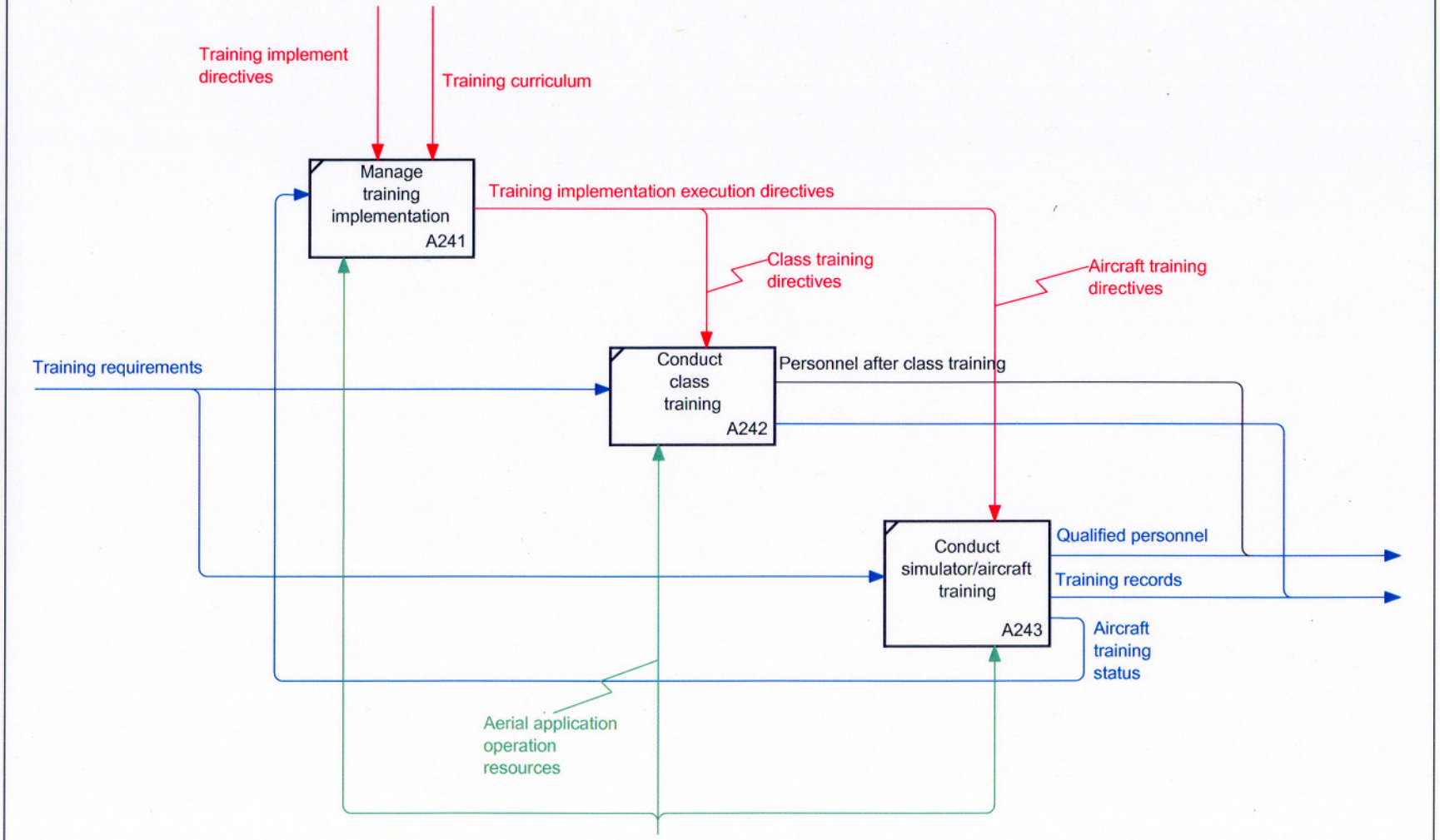
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION			A2



NODE:	TITLE:	NUMBER:
A2.4	Implement training	

5.4.4 A2.4—Implement Training.

This function delivers the knowledge, methods, procedures, skills, etc., to personnel who requires and receives training and documents the training process.

Input Name: Training requirements
Input Definition: Specifications on what kind of training is needed based on the analysis of the job task requirement and personnel qualification requirement.

Control Name: Training curriculum
Control Definition: The topics and methods of training that is required to be implemented during training.

Output Name: Training records
Output Definition: Training records are those documents that show required training has been completed.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Training implement directives
Control Definition: A set of policies/procedures/instructions that directs training implementation.

Output Name: Qualified personnel
Output Definition: Persons qualified for conducting certain tasks.

5.4.4.1 A2.4.1—Manage Training Implementation.

This function directs, schedules, and coordinates the following component activities of training implementation: Conduct class training, Conduct simulator/aircraft training. It provides directives, defines requirements and controls for the execution of those

activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Aircraft training status
Input Definition: Continuously updated information regarding the conditions that exist in the aircraft training.

Control Name: Training implement directives
Control Definition: A set of policies/procedures/instructions that directs training implementation.

Output Name: Training implementation execution directives
Output Definition: A set of policies/procedures/instructions that directs execution of training implementation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Training curriculum
Control Definition: The topics and methods of training that is required to be implemented during training.

5.4.4.2 A2.4.2—Conduct Class Training.

This function delivers training to personnel through instructor-led classroom sessions.

Input Name: Training requirements
Input Definition: Specifications on what kind of training is needed based on the analysis of the job task requirement and personnel qualification requirement.

Control Name: Class training directives
Control Definition: A set of policies/procedures/instructions that directs class training.

Output Name: Personnel after class training
Output Definition: Personnel after completing class training.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Training records
Output Definition: Training records are those documents that show required training has been completed.

5.4.4.3 A2.4.3—Conduct Simulator/Aircraft Training.

This function delivers training to personnel through aircraft/simulator instruction.

Input Name: Training requirements
Input Definition: Specifications on what kind of training is needed based on the analysis of the job task requirement and personnel qualification requirement.

Control Name: Aircraft training directives
Control Definition: A set of policies/procedures/instructions that directs aircraft training.

Output Name: Qualified personnel
Output Definition: Persons qualified for conducting certain tasks.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human

resources, provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Training records
Output Definition: Training records are those documents that show required training has been completed.

Output Name: Aircraft training status
Output Definition: Continuously updated information regarding the conditions that exist in the aircraft training.

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			RECOMMENDED			
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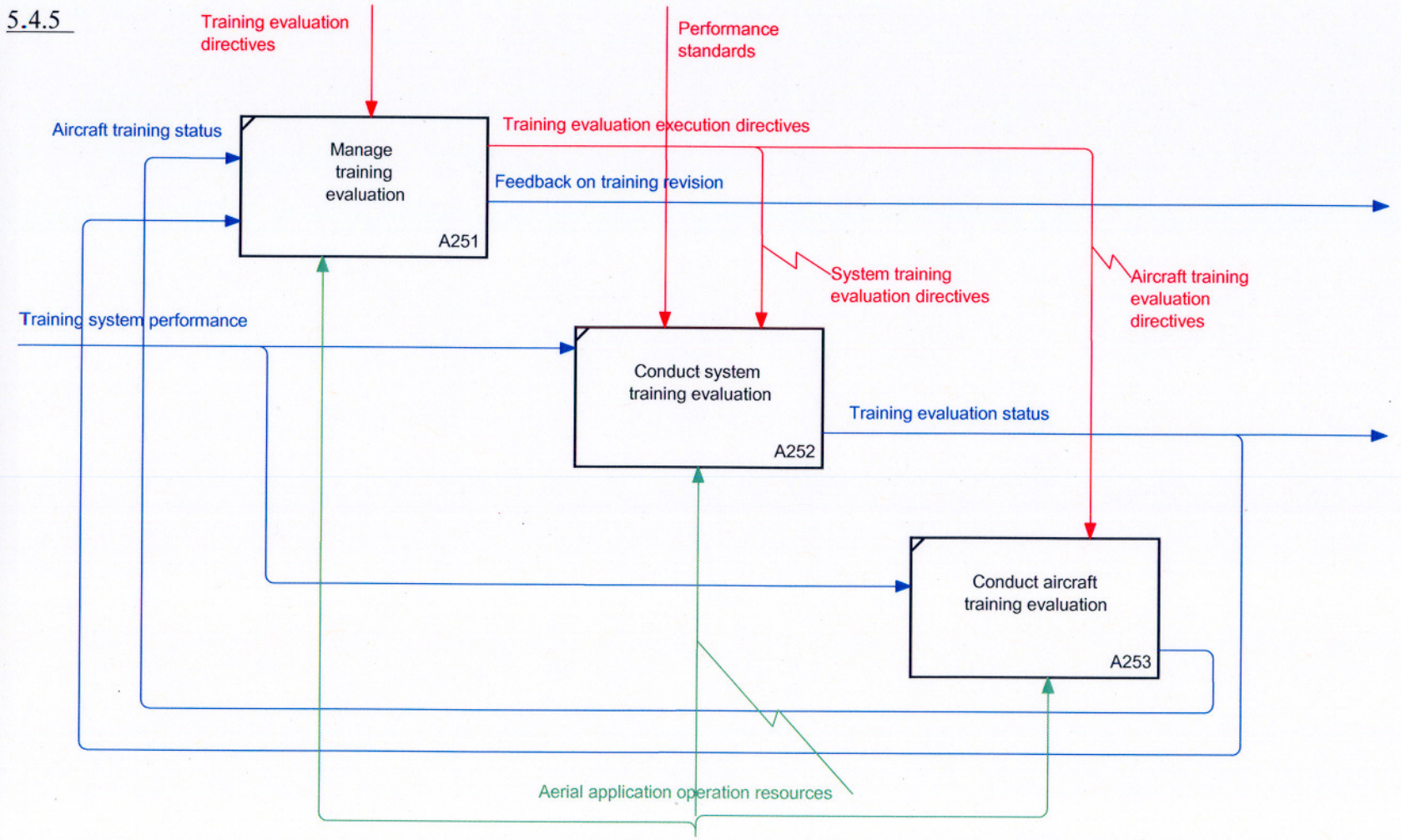
5.4.5



NODE:	TITLE:	NUMBER:
A2.5	Evaluate training	

5.4.5 A2.5—Evaluate Training.

This function collects, analyzes, and interprets systematic training information. This training information can be used to improve training effectiveness and determine whether training objectives/goals are met.

Input Name: Training system performance
Input Definition: Characteristics of training system generated from the real-time reports from each training activities.

Control Name: Performance standards
Control Definition: The specifications of the performance personnel that should be achieved after being trained.

Output Name: Training evaluation status
Output Definition: Continuously updated information regarding the conditions that exist in the training evaluation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Training evaluation directives
Control Definition: A set of policies/procedures/instructions that directs Training evaluation.

Output Name: Feedback on training revision
Output Definition: The revisions recommended by training evaluation are sent back for analysis and possible inclusion in new training requirements.

5.4.5.1 A2.5.1—Manage Training Evaluation.

This function directs, schedules, and coordinates the following component activities of training evaluation: Conduct system training evaluation and Conduct aircraft training evaluation. It provides directives, defines requirements and controls for the execution of

those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for the activities.

Input Name: Aircraft training status
Input Definition: Continuously updated information regarding the conditions that exist in the aircraft training.

Control Name: Training evaluation directives
Control Definition: A set of policies/procedures/instructions that directs training evaluation.

Output Name: Training evaluation execution directives
Output Definition: A set of policies/procedures/instructions that directs execution of training evaluation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Training evaluation status
Input Definition: Continuously updated information regarding the conditions that exist in the training evaluation.

Output Name: Feedback on training revision
Output Definition: The revisions recommended by the training evaluation are sent back for analysis and possible inclusion in new training requirements.

5.4.5.2 A2.5.2—Conduct System Training Evaluation.

This function evaluates by using systems evaluation guidelines, personnel's knowledge of aircraft equipment, aircraft systems, system operations, and system performance.

Input Name: Training system performance
Input Definition: Characteristics of the training system generated from the real-time reports from each training activities.

Control Name: Performance standards
Control Definition: The specifications of the performance personnel that should be achieved after being trained.

Output Name: Training evaluation status
Output Definition: Continuously updated information regarding the conditions that exist in the training evaluation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: System training evaluation directives
Control Definition: A set of policies/procedures/instructions that directs system training evaluation.

5.4.5.3 A2.5.3—Conduct Aircraft Training Evaluation.

This function evaluates personnel's competency in operating, working with, and dealing with the aircraft.

Input Name: Training system performance
Input Definition: Characteristics of the training system generated from the real-time reports from each training activities.

Control Name: Aircraft training evaluation directives
Control Definition: A set of policies/procedures/instructions that directs aircraft training evaluation.

Output Name: Aircraft training status
Output Definition: Continuously updated information regarding the conditions that exist in the aircraft training.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment,

tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

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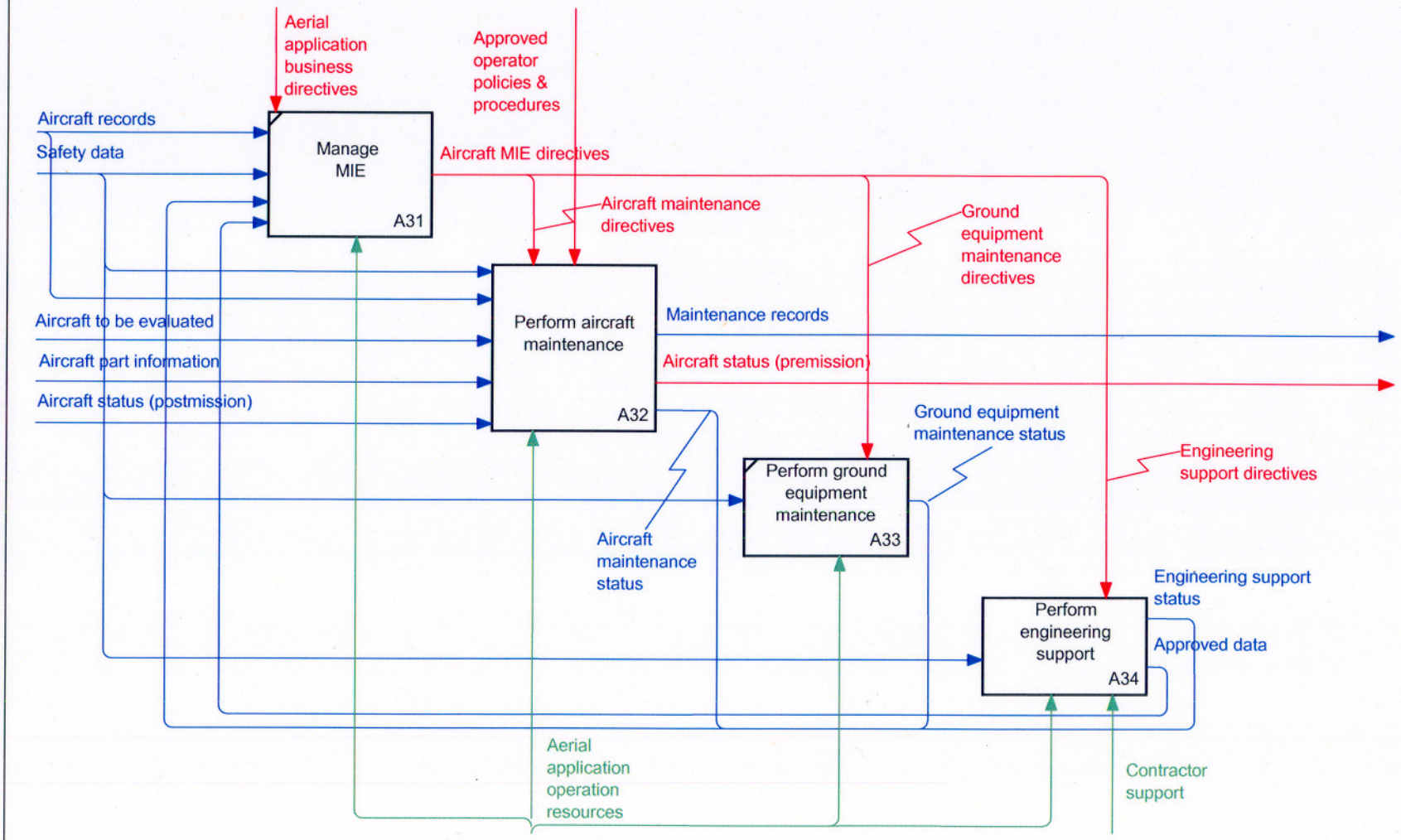
			RECOMMENDED			
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION			A0



NODE:	TITLE:	NUMBER:
A3	Perform aircraft maintenance, inspection & engineering	

5.5 A3—PERFORM AIRCRAFT MAINTENANCE, INSPECTION & ENGINEERING.

This function maintains aircraft to prevent deterioration of the inherent safety and reliability levels of the equipment to ensure that the aircraft conforms to its type design and in a condition for safe operation. This includes inspection, overhaul, repair, engineering, preservation, and the replacement of parts. The inspection refers to quality assurance and quality control. Engineering means to provide technical support for aircraft repairs and alterations.

Input Name: Aircraft to be evaluated
Input Definition: The aircraft(s) that need to be checked for aircraft airworthiness.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

Output Name: Aircraft status (premission)
Output Definition: The premission aircraft status is the state of airworthiness allowing use of the aircraft to begin the assigned mission.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Aircraft records
Input Definition: The document recording an aircraft's history for maintenance reference.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that assure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Maintenance records
Output Definition: The document that records the maintenance activities performed. Information, recorded from instrument or written by persons, describing the status, results, costs, profits, conformance to requirements, and so forth, of aerial aircraft maintenance.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

Input Name: Aircraft part information
Input Definition: Data related to aircraft parts such as identification, manufacturer, price, specifications, and appropriate records.

Input Name: Aircraft status (postmission)
Input Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

5.5.1 A3.1—Manage MIE.

This function directs, schedules, and coordinates the following component activities of aircraft maintenance, inspection, and engineering: Perform aircraft maintenance, Perform ground equipment maintenance and Perform engineering support. It provides directives, defines requirements and controls for the execution of those activities and also checks that the execution is done in accordance with company policies and procedures and any required regulations for the activities.

Input Name: Aircraft records
Input Definition: The document recording an aircraft's history for maintenance reference.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

Output Name: Aircraft MIE directives
Output Definition: A set of policies/procedures/instructions that directs aircraft MIE.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Input Name: Engineering support status
Input Definition: Continuously updated information regarding the conditions that exist in the engineering support.

Input Name: Approved data
Input Definition: FAA-approved engineering data used for guidance in making modifications or repairs to the aerial application aircraft.

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	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 7/1/2004		DRAFT		
				RECOMMENDED		
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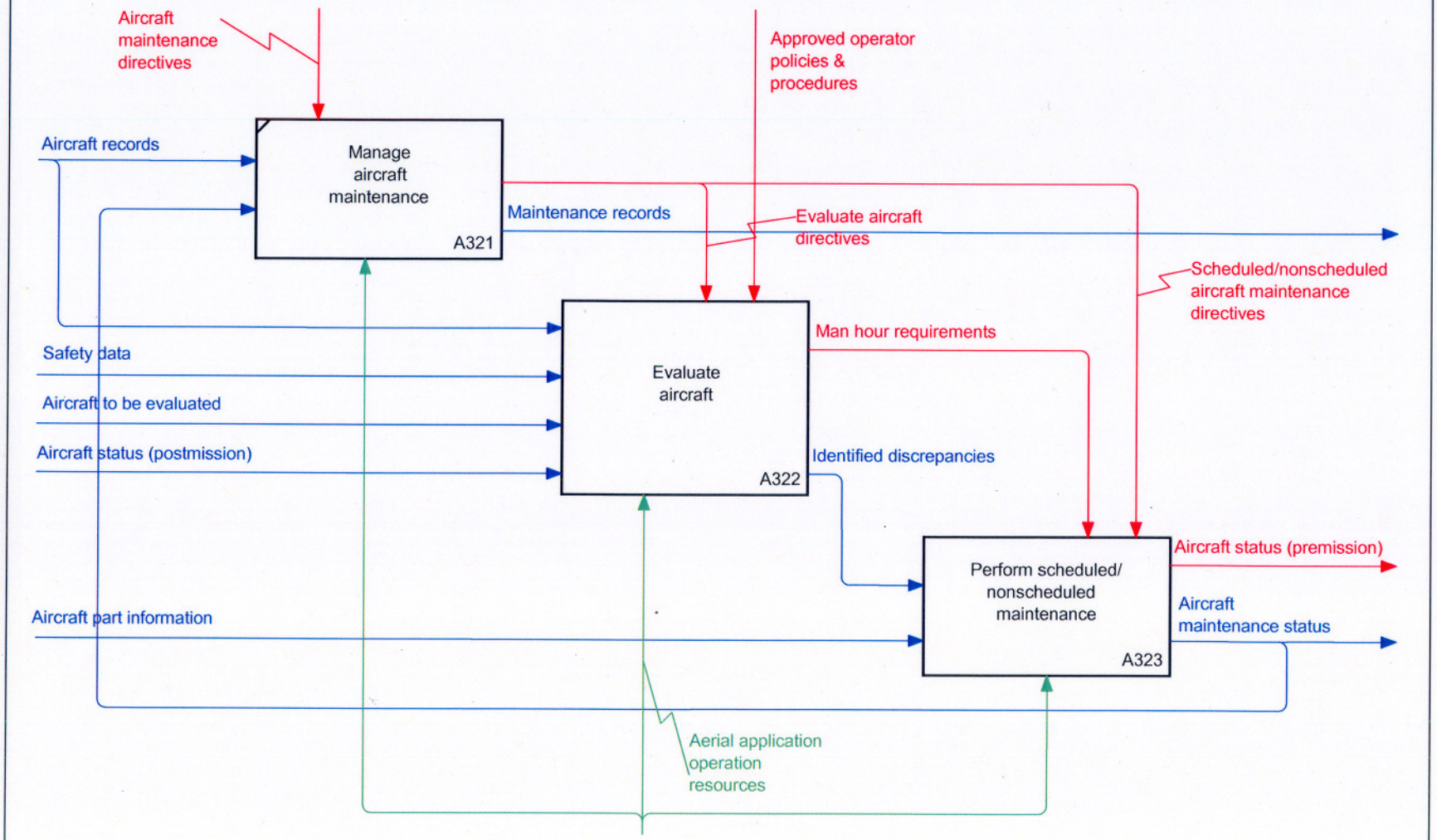

NODE:	TITLE:	NUMBER:
A3.2	Perform aircraft maintenance	

5.5.2 A3.2—Perform Aircraft Maintenance.

This function inspects and maintains aircraft to ensure that the aircraft conforms to its type design (or approved altered condition) and in a condition for safe operation. This process includes aircraft evaluation and scheduled/nonscheduled maintenance.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Aircraft maintenance directives
Control Definition: A set of policies/procedures/instructions that directs aircraft maintenance.

Output Name: Maintenance records
Output Definition: The document that records the maintenance activities performed. Information, recorded from instrument or written by persons, describing the status, results, costs, profits, conformance to requirements, and so forth, of aerial aircraft maintenance.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Aircraft records
Input Definition: The document recording an aircraft's history for maintenance reference.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Aircraft status (premission)
Output Definition: The premission aircraft status is the state of airworthiness allowing use of the aircraft to begin the assigned mission.

Input Name: Aircraft to be evaluated
Input Definition: The aircraft(s) that need to be checked for aircraft airworthiness.

Output Name: Aircraft maintenance status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft maintenance.

Input Name: Aircraft part information
Input Definition: Data related to aircraft parts such as identification, manufacturer, price, specifications, and appropriate records.

Input Name: Aircraft status (postmission)
Input Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

5.5.2.1 A3.2.1—Manage Aircraft Maintenance.

This function directs, schedules, and coordinates the following component activities of aircraft maintenance: Evaluate aircraft and Perform scheduled/nonscheduled maintenance. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Aircraft records
Input Definition: The document recording an aircraft's history for maintenance reference.

Control Name: Aircraft maintenance directives
Control Definition: A set of policies/procedures/instructions that directs aircraft maintenance.

Output Name: Evaluate aircraft directives
Output Definition: A set of policies/procedures/instructions that directs aircraft evaluation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Aircraft maintenance status
Input Definition: Continuously updated information regarding the conditions that exist in Aircraft maintenance.

Output Name: Maintenance records
Output Definition: The document that records the maintenance activities performed. Information, recorded from instrument or written by persons, describing the status, results, costs, profits, conformance to requirements, and so forth, of aerial aircraft maintenance.

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			RECOMMENDED		
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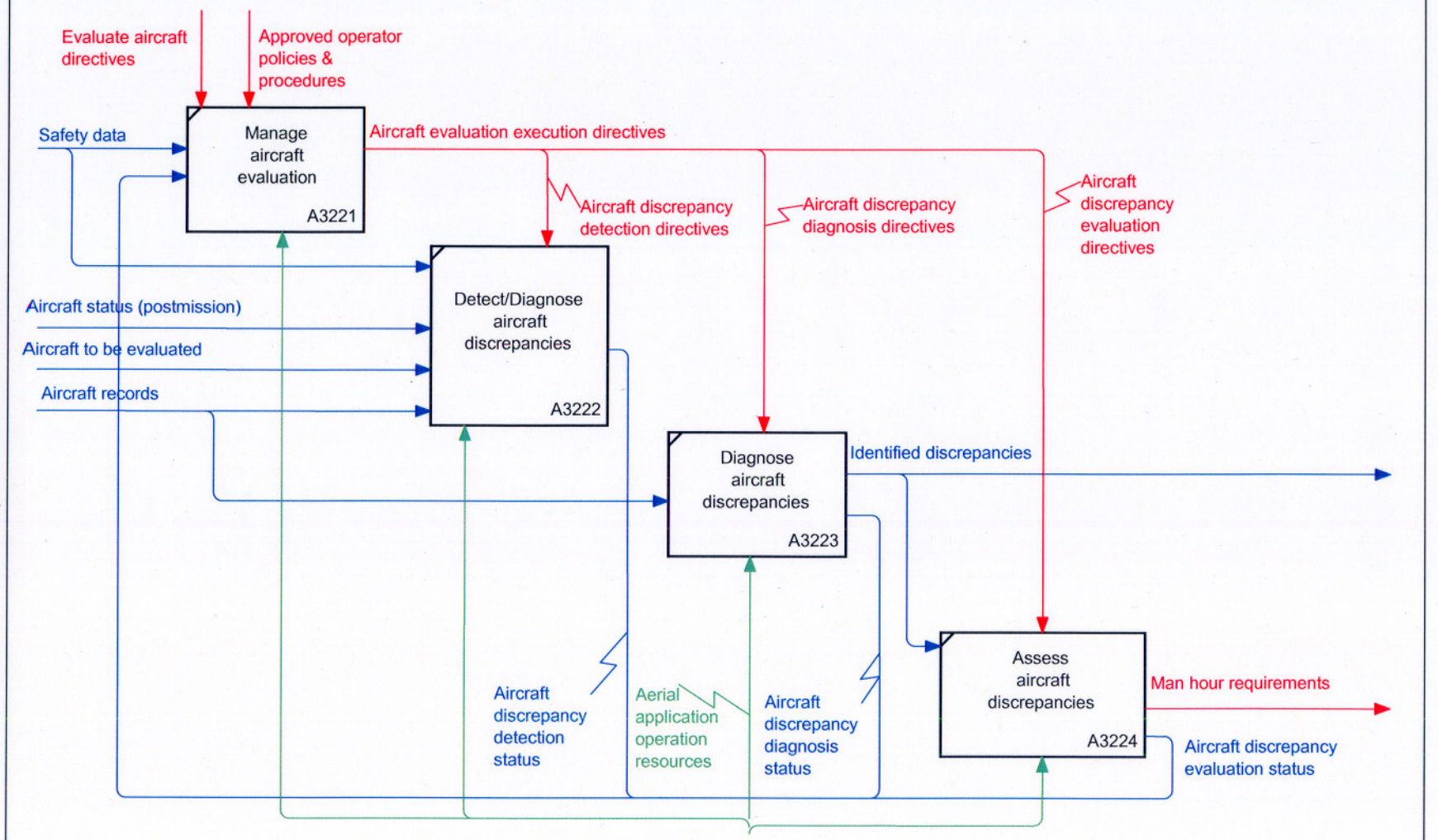

NODE:	TITLE:	NUMBER:
A3.2.2	Evaluate aircraft	

5.5.2.2 A3.2.2—Evaluate Aircraft.

This function controls aircraft inspection, test, and evaluation. A determination of whether the aircraft is in an airworthy condition, and if any corrective action is required is made. An assessment of resources required and availability is also made.

Input Name: Aircraft records
Input Definition: The document recording an aircraft's history for maintenance reference.

Control Name: Evaluate aircraft directives
Control Definition: A set of policies/procedures/instructions that directs aircraft evaluation.

Output Name: Man-hour requirements
Output Definition: An estimate of man-hour requirements made to the aircraft maintenance section after evaluating the aircraft.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Identified discrepancies
Output Definition: Faults found with the condition of the aircraft that are to be assessed and repaired.

Input Name: Aircraft to be evaluated
Input Definition: The aircraft(s) that need to be checked for aircraft airworthiness.

Input Name: Aircraft status (postmission)
Input Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

5.5.2.2.1 A3.2.2.1—Manage Aircraft Evaluation.

This function directs, schedules, and coordinates the following component activities of aircraft evaluation: Detect aircraft discrepancies, Diagnose aircraft discrepancies, and Assess aircraft discrepancies, and provides aircraft evaluation resources. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Evaluate aircraft directives
Control Definition: A set of policies/procedures/instructions that directs aircraft evaluation.

Output Name: Aircraft evaluation execution directives
Output Definition: A set of policies/procedures/instructions that directs aircraft evaluation execution.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Aircraft discrepancy evaluation status
Input Definition: Continuously updated information regarding the conditions that exist in Aircraft discrepancy evaluation.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

5.5.2.2.2 A3.2.2.2—Detect Diagnose Aircraft Discrepancies.

This function checks and finds evidence that some discrepancies exist with the aircraft.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Aircraft discrepancy detection directives
Control Definition: A set of policies/procedures/instructions that directs aircraft discrepancy detection.

Output Name: Airworthy aircraft
Output Definition: Aircraft in airworthy condition in which the aircraft, airframe, engine, propeller, accessories, and appliances meet their type design and are in a condition for safe operations.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Aircraft status (postmission)
Input Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Output Name: Aircraft discrepancy detection status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft discrepancy detection.

Input Name: Aircraft to be evaluated
Input Definition: The aircraft(s) that need to be checked for aircraft airworthiness.

Input Name: Aircraft records
Input Definition: The document recording an aircraft's history for maintenance reference.

5.5.2.2.3 A3.2.2.3—Diagnose Aircraft Discrepancies.

This function includes troubleshooting the root cause(s) of aircraft discrepancies based on the information from aircraft discrepancies and records.

Input Name: Aircraft records
Input Definition: The document recording an aircraft's history for maintenance reference.

Control Name: Aircraft discrepancy diagnosis directives
Control Definition: A set of policies/procedures/instructions that directs aircraft discrepancy diagnosis.

Output Name: Identified discrepancies
Output Definition: Faults found with the condition of the aircraft that are to be assessed and repaired.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Aircraft discrepancy diagnosis status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft discrepancy diagnosis.

5.5.2.2.4 A3.2.2.4—Assess Aircraft Discrepancies.

This function assesses the aircraft discrepancies and estimates the workload and parts required to fix the discrepancies.

Input Name: Identified discrepancies
Input Definition: Faults found with the condition of the aircraft that are to be assessed and repaired.

Control Name: Aircraft discrepancy evaluation directives
Control Definition: A set of policies/procedures/instructions that directs aircraft discrepancy evaluation.

Output Name: Man-hour requirements
Output Definition: An estimate of man-hour requirements made to the aircraft maintenance section after evaluating the aircraft.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Aircraft discrepancy evaluation status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft discrepancy evaluation.

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	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 7/1/2004	DRAFT			
			RECOMMENDED			
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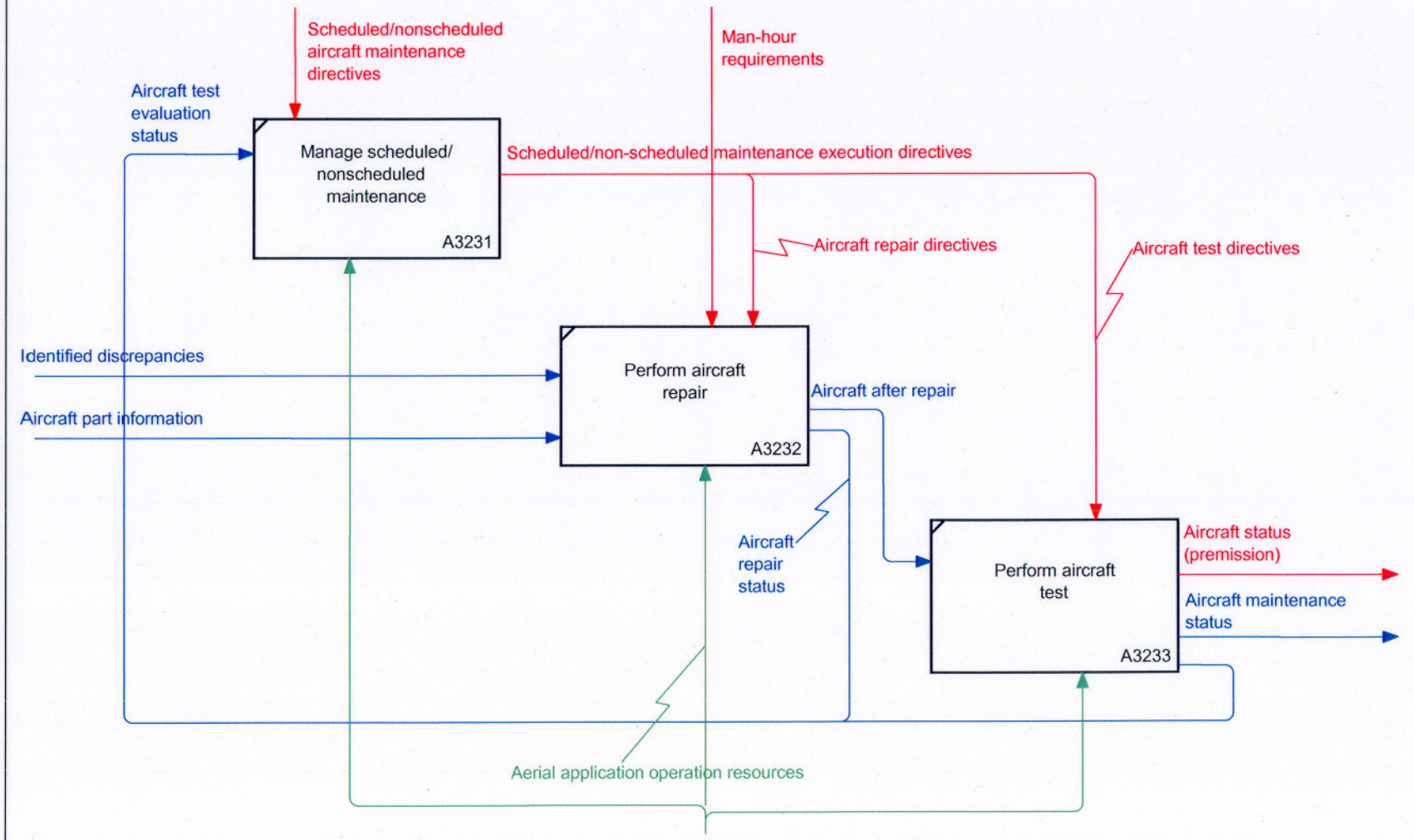

NODE:	TITLE:	NUMBER:
A3.2.3	Perform scheduled/nonscheduled maintenance	

5.5.2.3 A3.2.3—Perform Scheduled/Nonscheduled Maintenance.

This function conducts aircraft maintenance to correct discrepancies based on the information from aircraft evaluation. Here, scheduled (routine) maintenance is referred to as the performance of maintenance tasks at prescribed intervals, and nonscheduled (nonroutine) maintenance is referred to as the performance of maintenance tasks when mechanical irregularities occur.

Input Name: Identified discrepancies
Input Definition: Faults found with the condition of the aircraft that are to be assessed and repaired.

Control Name: Man-hour requirements
Control Definition: An estimate of man-hour requirements made to the aircraft maintenance section after evaluating the aircraft.

Output Name: Aircraft status (premission)
Output Definition: The premission aircraft status is the state of airworthiness allowing use of the aircraft to begin the assigned mission.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Aircraft part information
Input Definition: Data related to aircraft parts such as identification, manufacturer, price, specifications, and appropriate records.

Control Name: Scheduled/nonscheduled aircraft maintenance directives
Control Definition: A set of policies/procedures/instructions that directs scheduled/nonscheduled aircraft maintenance.

Output Name: Aircraft maintenance status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft maintenance.

5.5.2.3.1 A3.2.3.1—Manage Scheduled/Nonscheduled Maintenance.

This function directs, schedules, and coordinates the following component activities of scheduled/nonscheduled maintenance: Perform aircraft repair and Perform aircraft test. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Aircraft test evaluation status
Input Definition: Continuously updated information regarding the conditions that exist in aircraft test evaluation.

Control Name: Scheduled/nonscheduled aircraft maintenance directives
Control Definition: A set of policies/procedures/instructions that directs scheduled/nonscheduled aircraft maintenance.

Output Name: Scheduled/nonscheduled maintenance execution directives
Output Definition: A set of policies/procedures/instructions that directs scheduled/nonscheduled aircraft maintenance execution.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.5.2.3.2 A3.2.3.2—Perform Aircraft Repair.

This function captures the process of correcting the discrepancies.

Input Name: Identified discrepancies
Input Definition: Faults found with the condition of the aircraft that are to be assessed and repaired.

Control Name: Man-hour requirements
Control Definition: An estimate of man-hour requirements made to the aircraft maintenance section after evaluating the aircraft.

Output Name: Aircraft after repair
Output Definition: Aircraft after its discrepancies are corrected.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Aircraft part information
Input Definition: Data related to aircraft parts such as identification, manufacturer, price, specifications, and appropriate records.

Control Name: Aircraft repair directives
Control Definition: A set of policies/procedures/instructions that directs aircraft repair.

Output Name: Aircraft repair status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft repair.

5.5.2.3.3 A3.2.3.3—Perform Aircraft Test.

This function tests and evaluates the performance of the aircraft after maintenance is completed.

Input Name: Aircraft after repair
Input Definition: Aircraft after its discrepancies are corrected.

Control Name: Aircraft test directives
Control Definition: A set of policies/procedures/instructions that directs aircraft testing.

Output Name: Aircraft status (premission)
Output Definition: The premission aircraft status is the state of airworthiness allowing use of the aircraft to begin the assigned mission.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Aircraft maintenance status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft maintenance.

Output Name: Aircraft test evaluation status
Output Definition: Continuously updated information regarding the conditions that exist in aircraft test evaluation.

5.5.3 A3.3—Perform Ground Equipment Maintenance.

This function inspects and maintains ground equipment. This process includes ground equipment evaluation and scheduled/nonscheduled maintenance.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Ground equipment maintenance directives
Control Definition: A set of policies/procedures/instructions that directs ground equipment maintenance.

Output Name: Ground equipment maintenance status
Output Definition: Continuously updated information regarding the conditions that exist in ground equipment maintenance.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human

resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

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			RECOMMENDED			
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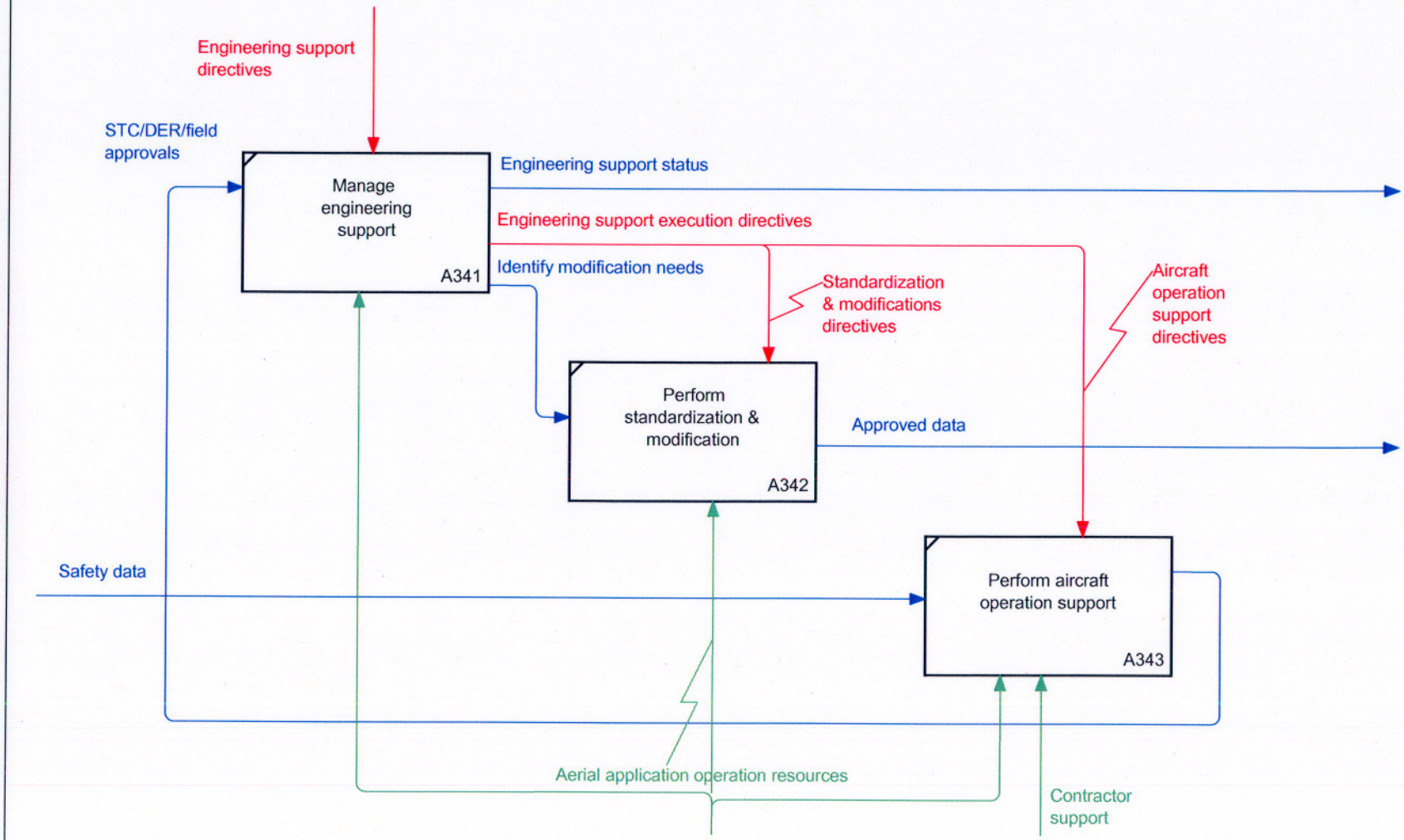

NODE:	TITLE:	NUMBER:
A3.4	Perform engineering support	

5.5.4 A3.4—Perform Engineering Support.

This function provides approved data for aircraft repairs and alterations.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Engineering support directives
Control Definition: A set of policies/procedures/instructions that directs engineering support.

Output Name: Engineering support status
Output Definition: Continuously updated information regarding the conditions that exist in the engineering support.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Approved data
Output Definition: FAA-approved engineering data used for guidance in making modifications or repairs to the aerial application aircraft.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

5.5.4.1 A3.4.1—Manage Engineering Support.

This function directs, schedules, and coordinates the following component activities of engineering support: Perform standardization & modification and Perform aircraft operation support. It provides directives, defines requirements and controls for the execution of

those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: STC/DER/field approvals
Input Definition: Various type of engineering support that might be required to repair or modify the aircraft.

Control Name: Engineering support directives
Control Definition: A set of policies/procedures/instructions that directs engineering support.

Output Name: Engineering support status
Output Definition: Continuously updated information regarding the conditions that exist in the engineering support.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Engineering support execution directives
Output Definition: A set of policies/procedures/instructions that directs engineering support execution.

5.5.4.2 A3.4.2—Perform Standardization and Modification.

This function develops standards and performs modifications to support new and existing aircraft(s).

Control Name: Standardization & modifications directives
Control Definition: A set of policies/procedures/instructions that directs standardization & modification.

Output Name: Approved data
Output Definition: FAA-approved engineering data used for guidance in making modifications or repairs to the aerial application aircraft.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.5.4.3 A3.4.3—Perform Aircraft Operation Support.

This function provides engineering assistance and advice for aircraft maintenance to ensure the data and operating procedures used for aircraft maintenance meet the engineering requirements. This includes technical interpretation, technical assistance, engineering orders, and reliability data.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Aircraft operation support directives
Control Definition: A set of policies/procedures/instructions that directs aircraft operation support.

Output Name: STC/DER/field approvals
Output Definition: Various type of engineering support that might be required to repair or modify the aircraft.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

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	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 9/8/2004		DRAFT		
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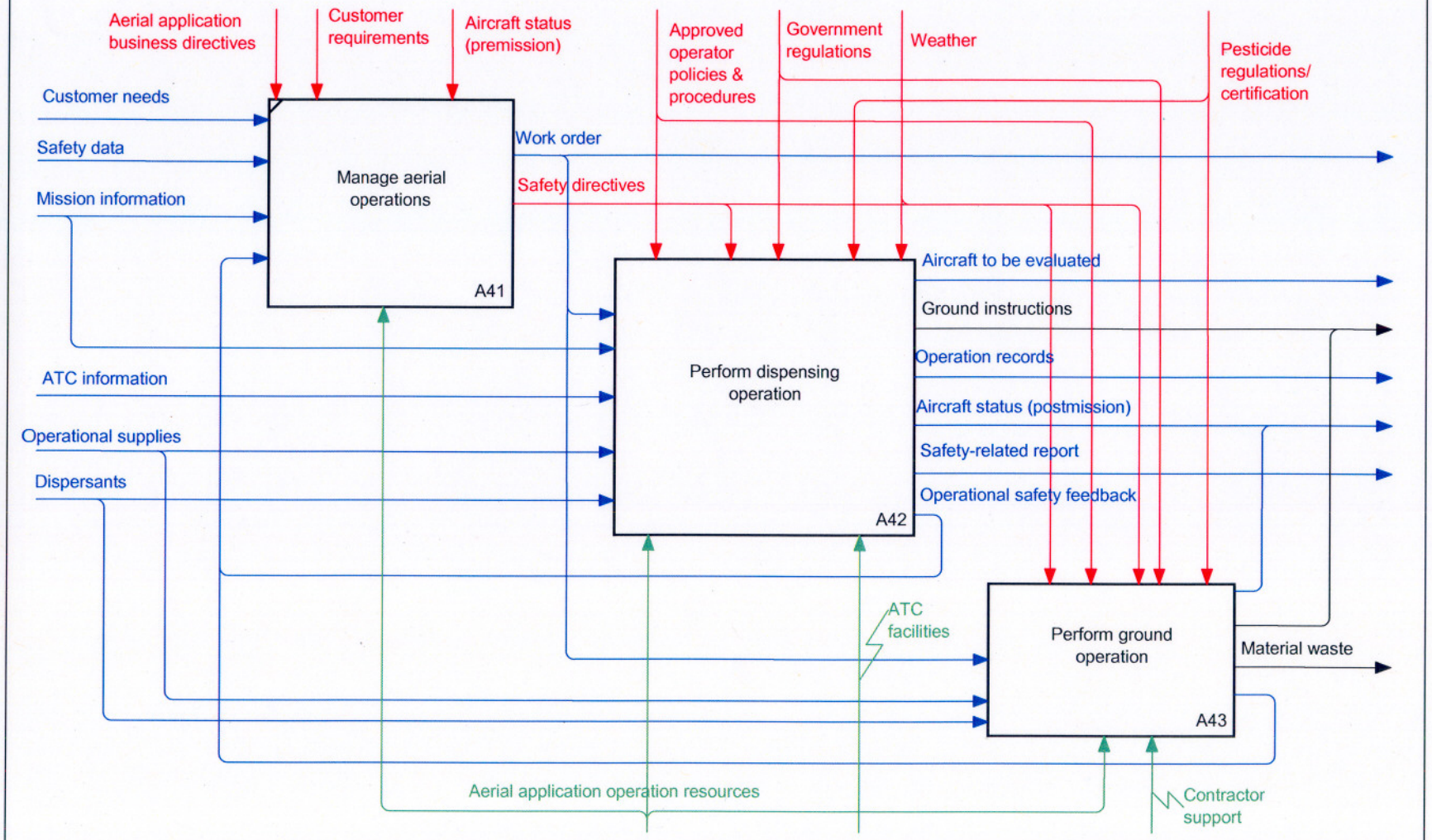


NODE:	TITLE:	NUMBER:
A4	Perform aerial application operations	

5.6 A4—PERFORM AERIAL APPLICATION OPERATIONS.

This function includes performing the operation of an aerial application aircraft for the purpose of dispensing any product/dispersant.

Input Name: Customer needs
Input Definition: Requests from the customer for a service.

Control Name: Aircraft status (premission)
Control Definition: The premission aircraft status is the state of airworthiness allowing use of the aircraft to begin the assigned mission.

Output Name: Operation records
Output Definition: Documents that record the historical performance of aerial application operations and it contains information related to the performance of operations such as data necessary for analysis and regulatory reporting purposes and nonregulatory process deficiencies. The records include (1) the name and address of each person for whom aerial application aircraft services were provided; (2) the date of service; (3) the name and quantity of the material dispensed for each operation conducted; (4) the name, address, and certificate number of each pilot used in aerial application operations and the date that the pilot met the knowledge and skills requirements of 14 CFR 137.19 (e); and (5) the record must be kept for at least 12 months and made available for inspection by the administrator upon request.

Mechanism Name: ATC facilities
Mechanism Definition: Facilities that provide ATC services. These services are services to promote the safe, orderly, and expeditious flow of air traffic within a national airspace system.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues and vendor/contractor selection.

Output Name: Material waste
Output Definition: Material/poison for which specific requirements are needed for their disposal.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

Input Name: Mission information
Input Definition: This includes, but is not limited to, flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Output Name: Ground instructions
Output Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Safety-related report
Output Definition: A safety-related report is a report of any safety-related concerns that became apparent during the conduct of an assigned mission.

Input Name: Dispersants
Input Definition: Any product/substance dispensed from an aerial application aircraft.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Aircraft to be evaluated
Output Definition: The aircraft(s) that need to be checked for aircraft airworthiness.

Input Name: ATC Information
Input Definition: Information about ATC used for operational policy and procedure development.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Aircraft status (postmission)
Output Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Control Name: Customer requirements
Control Definition: Customer requirements include experience, training, and proficiency requirements beyond those required by applicable regulations.

Output Name: Work order
Output Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

5.6.1 A4.1—Manage Aerial Operations.

This function directs, schedules, and coordinates the following component activities of aerial application operations: Perform dispensing operation, Perform dispersant handling and Perform ground operations. It provides directives, defines requirements and controls for the execution of those activities and also checks that the execution is done with accordance with company policies and procedures and any required regulations for the activities.

Input Name: Customer needs
Input Definition: Requests from the customer for a service.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

Output Name: Work order
Output Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Safety data
Input Definition: Data sources related to information regarding safety of 14 CFR Part 137 operations, internal evaluation, contractor oversight, and so forth.

Control Name: Customer requirements
Control Definition: Customer requirements include experience, training, and proficiency requirements beyond those required by applicable regulations.

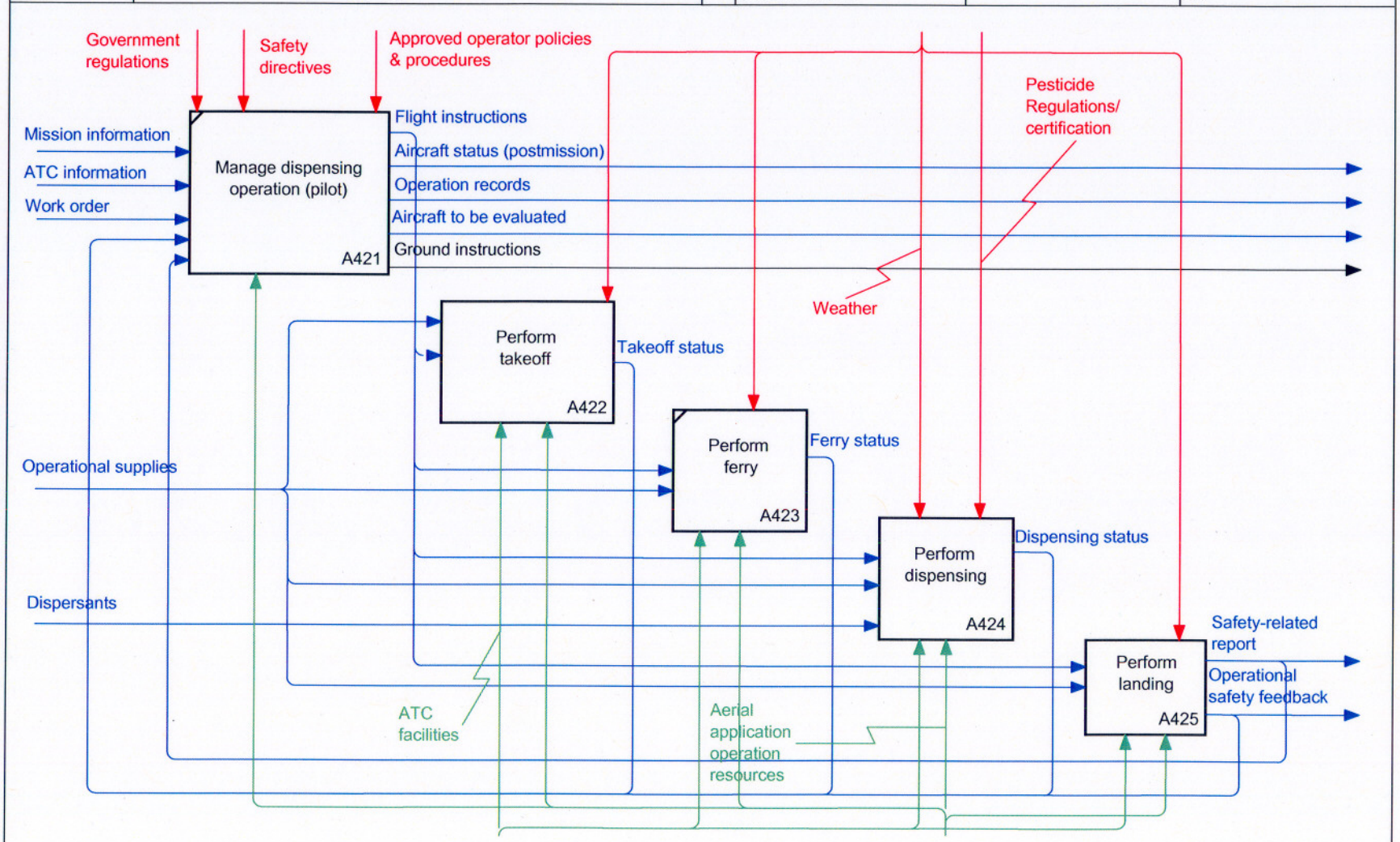
Output Name: Safety directives
Output Definition: Safety-related directives that are mandated by the application operations management to the flight and ground operations.

Input Name: Mission information
Input Definition: This includes, but is not limited to, flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Control Name: Aircraft status (premission)
Control Definition: The premission aircraft status is the state of airworthiness allowing use of the aircraft to begin the assigned mission.

Input Name: Operational safety feedback
Input Definition: Safety feedback from the dispensing (and ground) operation(s) to the aerial operations management.

USED AT:	AUTHOR: 14 CFR Part 137 Team	DATE: 5/10/2004	WORKING	READER	DATE	CONTEXT:
	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 7/1/2004	DRAFT			
			RECOMMENDED			
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION			A4



NODE:	TITLE:	NUMBER:
A4.2	Perform dispensing operation	

5.6.2 A4.2—Perform Dispensing Operations.

This includes the operation of an aerial application aircraft for the purpose of dispensing any product/dispersant. This includes any in-flight activity between takeoff and landing.

Input Name: Work order
Input Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Aircraft to be evaluated
Output Definition: The aircraft(s) that need to be checked for aircraft airworthiness.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

Input Name: Mission information
Input Definition: This includes, but is not limited to, flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Control Name: Safety directives
Control Definition: Safety-related directives that are mandated by the application operations management to the flight and ground operations.

Output Name: Ground instructions
Output Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Mechanism Name: ATC facilities
Mechanism Definition: Facilities that provide ATC services. These services are services to promote the safe, orderly, and expeditious flow of air traffic within a national airspace system.

Input Name: ATC Information
Input Definition: Information about ATC used for operational policy and procedure development.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Operation records
Output Definition: Documents that record the historical performance of aerial application operations and it contains information related to the performance of operations such as data necessary for analysis and regulatory reporting purposes and nonregulatory process deficiencies. The records include (1) the name and address of each person for whom aerial application aircraft services were provided; (2) the date of service; (3) the name and quantity of the material dispensed for each operation conducted; (4) the name, address, and certificate number of each pilot used in aerial application operations and the date that the pilot met the knowledge and skills requirements of 14 CFR 137.19 (e); and (5) the record must be kept for at least 12 months and made available for inspection by the administrator upon request.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Output Name: Aircraft status (postmission)
Output Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Input Name: Dispersants
Input Definition: Any product/substance dispensed from an aerial application aircraft.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Safety-related report
Output Definition: A safety-related report is a report of any safety-related concerns that became apparent during the conduct of an assigned mission.

Output Name: Operational safety feedback
Output Definition: Safety feedback from the dispensing (and ground) operation(s) to the aerial operations management.

5.6.2.1 A4.2.1—Manage Dispensing Operations (Pilot).

The pilot or aircraft commander in charge of the flight portion of the mission that is in charge of the flight crew and responsible for their actions. This function directs, schedules, and coordinates the following component activities of perform dispensing operation: Perform takeoff, Perform ferry, Perform dispensing, and Perform landing. It provides directives, defines requirements and controls for the execution of those activities, and also checks that the execution is done with accordance with company policies and procedures and any required regulations for the activities.

Input Name: Mission information
Input Definition: This includes, but is not limited to, flight information, airport information, weather reports, flight routes, dispersant specifications, aircraft performance, payload, fuel and weight and balance information, number and size of loads, risk assessment, crew information, aircraft assignment, etc.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to assure compliance with the regulations.

Output Name: Flight instructions
Output Definition: Those instructions to the crew or actions taken by the aircraft commander regarding the actual dispensing flight.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: ATC information
Input Definition: Information about ATC used for operational policy and procedure development.

Control Name: Safety directives
Control Definition: Safety-related directives that are mandated by the application operations management to the flight and ground operations.

Output Name: Aircraft status (postmission)
Output Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Input Name: Work order
Input Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Operation records
Output Definition: Documents that record the historical performance of aerial application operations and it contains information related to the performance of operations such as data necessary for analysis and regulatory reporting purposes and nonregulatory process deficiencies. The records include (1) the name and address of each person for whom aerial application aircraft services were provided; (2) the date of service; (3) the name and quantity of the material dispensed for each operation conducted; (4) the name, address, and certificate number of each pilot used in aerial application operations and the date that the pilot met the knowledge and skills requirements of 14 CFR 137.19 (e); and (5) the record must be kept for at least 12 months and made available for inspection by the administrator upon request.

Input Name: Operational safety feedback
Input Definition: Safety feedback from the dispensing (and ground) operation(s) to the aerial operations management.

Output Name: Aircraft to be evaluated
Output Definition: The aircraft(s) that need to be checked for aircraft airworthiness.

Input Name: Safety-related report
Input Definition: A safety-related report is a report of any safety-related concerns that became apparent during the conduct of an assigned mission.

Output Name: Ground instructions
Output Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

5.6.2.2 A4.2.2—Perform Take-Off.

The portion of the flight where power is first applied for the purpose of flight until the aircraft is airborne.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Takeoff status
Output Definition: Continuously updated information regarding the conditions that exist during takeoff.

Mechanism Name: ATC facilities
Mechanism Definition: Facilities that provide ATC services. These services are services to promote the safe, orderly, and expeditious flow of air traffic within a national airspace system.

Input Name: Flight instructions
Input Definition: Those instructions to the crew or actions taken by the aircraft commander regarding the actual dispensing flight.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.6.2.3 A4.2.3—Perform Ferry.

The portion of the flight between the staging/loading area and the dispensing area.

Input Name: Flight instructions
Input Definition: Those instructions to the crew or actions taken by the aircraft commander regarding the actual dispensing flight.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Ferry status
Output Definition: Continuously updated information regarding the conditions that exist during ferry.

Mechanism Name: ATC facilities
Mechanism Definition: Facilities that provide ATC services. These services are services to promote the safe, orderly, and expeditious flow of air traffic within a national airspace system.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.6.2.4 A4.2.4—Perform Dispensing.

The actual process of releasing the dispersant to perform its desired functions.

Input Name: Flight instructions
Input Definition: Those instructions to the crew or actions taken by the aircraft commander regarding the actual dispensing flight.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Dispensing status
Output Definition: Continuously updated information regarding the conditions that exist during dispensing.

Mechanism Name: ATC facilities
Mechanism Definition: Facilities that provide ATC services. These services are services to promote the safe, orderly, and expeditious flow of air traffic within a national airspace system.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Dispersants
Input Definition: Any product/substance dispensed from an aerial application aircraft.

5.6.2.5 A4.2.5—Perform Landing.

The return to the staging area at the completion of a mission to be serviced and reloaded for another flight.

Input Name: Flight instructions
Input Definition: Those instructions to the crew or actions taken by the aircraft commander regarding the actual dispensing flight.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Safety-related report
Output Definition: A safety-related report is a report of any safety-related concerns that became apparent during the conduct of an assigned mission.

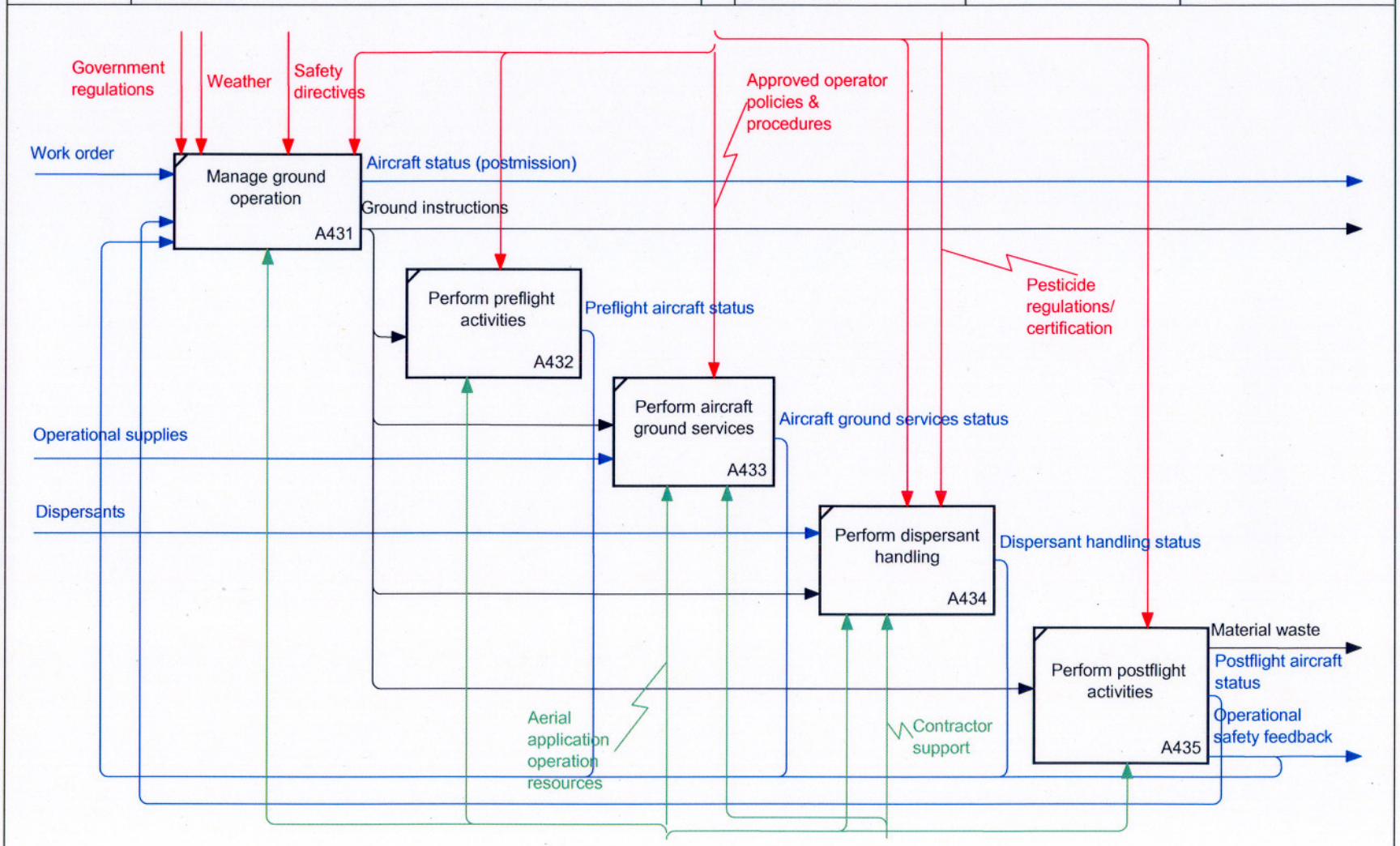
Mechanism Name: ATC facilities
Mechanism Definition: Facilities that provide ATC services. These services are services to promote the safe, orderly, and expeditious flow of air traffic within a national airspace system.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Output Name: Operational safety feedback
Output Definition: Safety feedback from the dispensing (and ground) operation(s) to the aerial operations management.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

USED AT:	AUTHOR: 14 CFR Part 137 Team	DATE: 5/10/2004	WORKING	READER DATE	CONTEXT:
	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 9/8/2004	DRAFT		
			RECOMMENDED		
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION		A4



NODE:	TITLE:	NUMBER:
A4.3	Perform ground operation	

5.6.3 A4.3—Perform Ground Operation.

This function provides ground services to aerial application operations including Perform preflight activities, Perform aircraft ground services, Perform dispersant handling, and Perform postflight activities.

Input Name: Work order
Input Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Aircraft status (postmission)
Output Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Material waste
Output Definition: Material/poison for which specific requirements are needed for their disposal.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

Input Name: Dispersants
Input Definition: Any product/substance dispensed from an aerial application aircraft.

Control Name: Safety directives
Control Definition: Safety-related directives that are mandated by the application Operations management to the flight and ground operations.

Output Name: Operational safety feedback
Output Definition: Safety feedback from the dispensing (and ground) operation(s) to the aerial operations management.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

5.6.3.1 A4.3.1—Manage Ground Operation.

The function of being in charge of the personnel on the ground that are preparing the aircraft for flight and caring for the aircraft after the mission.

Input Name: Work order
Input Definition: A work order is a document that shows the details of the work to be accomplished and is a record of what was actually accomplished.

Control Name: Government regulations
Control Definition: A set of documents from the FAA, DOT, DOI, DOA, EPA, TSA, and OSHA to regulate some or all phases of aerial application operations, including oversight activities by the applicable state and local governments to ensure compliance with the regulations.

Output Name: Aircraft status (postmission)
Output Definition: The postmission aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Postflight aircraft status
Input Definition: The postflight aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Control Name: Weather
Control Definition: Collection of data related to weather affecting aircraft flight operations. This weather data comes from outside the operation control center such as contractor weather services, field conditions, national weather service, other government weather services, pilot reports, RADAR, and SAWRS.

Output Name: Ground instructions
Output Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Input Name: Operational safety feedback
Input Definition: Safety feedback from the dispensing (and ground) operation(s) to the aerial operations management.

Control Name: Safety directives
Control Definition: Safety-related directives that are mandated by the application operations management to the flight and ground operations.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that assure compliance with FARs and other regulatory authority requirements approved by the FAA.

5.6.3.2 A4.3.2—Perform Preflight Activities.

The activities involved in making the aircraft ready for flight and observing that it is in an airworthy condition.

Input Name: Ground instructions
Input Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Preflight aircraft status
Output Definition: The preflight aircraft status is the state of airworthiness of the aircraft before completion of the assigned mission.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

5.6.3.3 A4.3.3—Perform Aircraft Ground Services.

Replenish the expended supplies and prepare the aircraft for further flight.

Input Name: Ground instructions
Input Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Aircraft ground services status
Output Definition: Continuously updated information regarding the conditions that exist during aircraft ground service.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Operational supplies
Input Definition: Operational supplies include, but not limited to, fuel, lubricants, parts, etc.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

5.6.3.4 A4.3.4—Perform Dispersant Handling.

Mix and load the dispersants into the delivery tank of the aircraft to be used for the operation.

Input Name: Dispersants
Input Definition: Any product/substance dispensed from an aerial application aircraft.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Output Name: Dispersant handling status
Output Definition: Continuously updated information regarding the conditions that exist during dispersant handling.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Ground instructions
Input Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Control Name: Pesticide regulations/certification
Control Definition: A set of documents from applicable governments to protect human health and the environment by regulating pesticide sales and use and fostering reduced-risk pest management. The regulations include product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners.

Mechanism Name: Contractor support
Mechanism Definition: Efforts from contractors required to support some of the aerial application operations.

5.6.3.5 A4.3.5—Perform Postflight Activities.

Perform an overall visual check of the aircraft as it returns from a mission. It would include cleaning the aircraft and dispersal system as required. This activity is responsible for handling and removal of wastes created by the dispersal operation.

Input Name: Ground instructions
Input Definition: Those instructions given or preformed by the ground crew management regarding servicing, loading, and performing postflight tasks on the aircraft.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

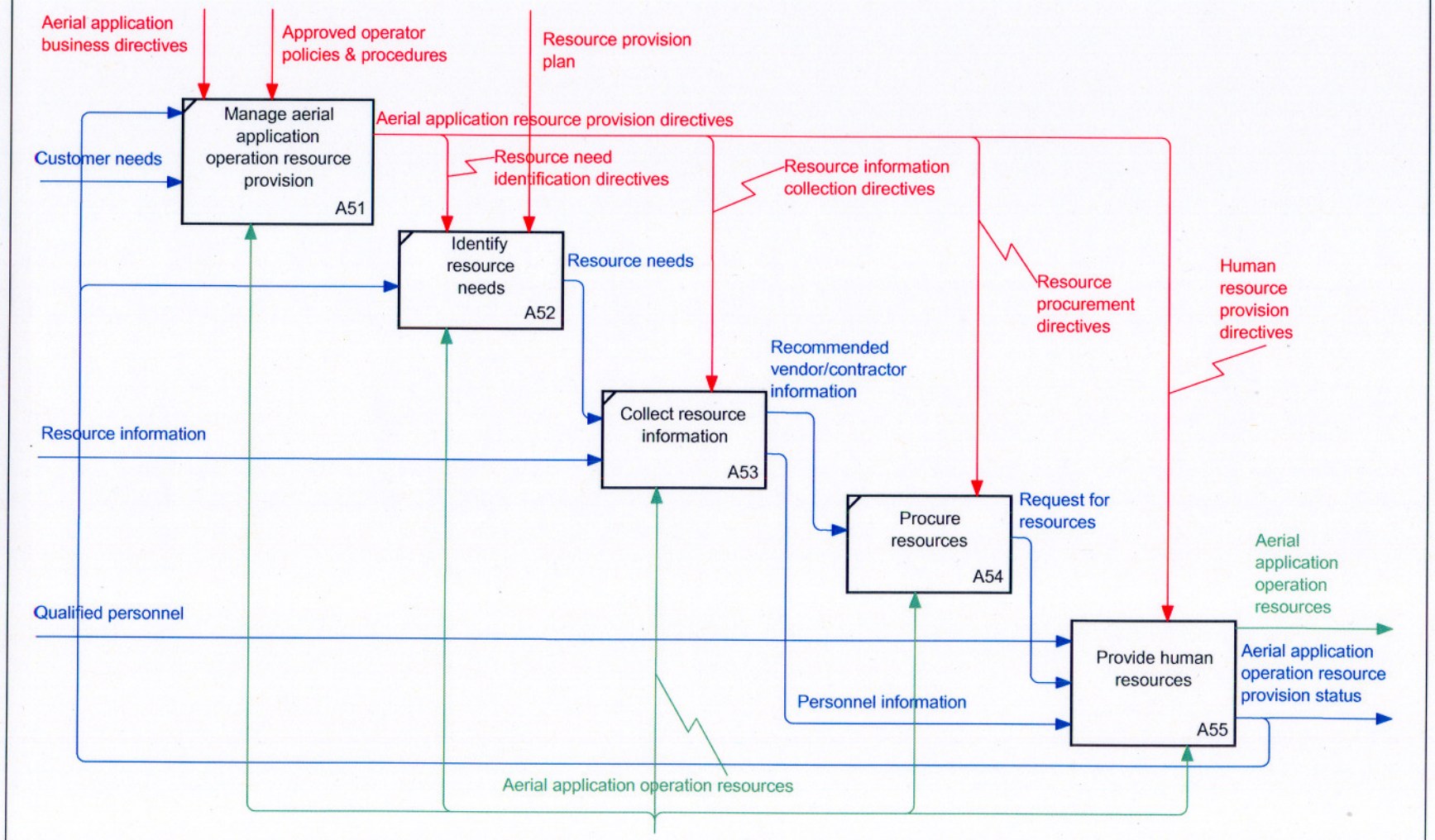
Output Name: Material waste
Output Definition: Material/poison for which specific requirements are needed for their disposal.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Post flight aircraft status
Output Definition: The postflight aircraft status is the state of airworthiness of the aircraft after completion of the assigned mission and is used to determine whether aircraft maintenance or other attention is required before the aircraft is available for the next assigned mission.

Output Name: Operational safety feedback
Output Definition: Safety feedback from the dispensing (and ground) operation(s) to the aerial operations management.

USED AT:	AUTHOR: 14 CFR Part 137 Team	DATE: 4/12/2004		WORKING	READER	DATE	CONTEXT:
	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 7/1/2004		DRAFT			
				RECOMMENDED			
	NOTES: 1 2 3 4 5 6 7 8 9 10			PUBLICATION			A0



NODE:	TITLE:	NUMBER:
A5	Provide aerial application operation resources	

5.7 A5—PROVIDE AERIAL APPLICATION OPERATION RESOURCES.

This function acquires and allocates aircraft, personnel, parts, materials, facilities, equipment, automation, information infrastructure, tools, budget, publications, and any other required resources to support the execution of the aerial application business.

Input Name: Customer needs
Input Definition: Requests from the customer for a service.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Qualified personnel
Input Definition: Persons qualified for conducting certain tasks.

Control Name: Resource provision plan
Control Definition: Definition of resources necessary to support planned operations such as perform personnel training, perform aircraft maintenance, inspection and engineering, and perform aerial application operations.

Output Name: Aerial application operation resource provision status
Output Definition: Continuously updated information regarding the conditions that exist in the resource provision planning.

Input Name: Resource information
Input Definition: Information regarding resources such as fuel (grade, quality, availability, audits, and cost), chemical supplies, staffing, human resources requirements, ground facility/supply equipment, and automation. This also includes information regarding

operational needs for improving operations such as personnel training, maintenance and operational program changes, maintenance, and operational requirements.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

5.7.1 A5.1—Manage Aerial Application Operation Resources Provision.

This function directs, schedules, and coordinates the following component activities of the aerial application operations: Identify resource needs, Collect resource information, Procure resources, and Provides human resources. It provides directives, defines requirements and controls, establishes performances standards for the execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Aerial application operation resource provision status
Input Definition: Continuously updated information regarding the conditions that exist in the resource provision planning.

Control Name: Aerial application business directives
Control Definition: Policies/procedures/instructions that aerial applicators use for business. The directives include various factors of consideration such as operational efficiency, economics, delays, environmental impact, labor relations, geographical issues, and vendor/contractor selection.

Output Name: Resource need identification directives
Output Definition: A set of policies/procedures/instructions that directs resource need identification.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Customer needs
Input Definition: Requests from the customer for a service.

Control Name: Approved operator policies & procedures
Control Definition: The policies and procedures that ensure compliance with FARs and other regulatory authority requirements approved by the FAA.

5.7.2 A5.2—Identify Resource Needs.

This function analyzes daily operational information and identifies the needs for resources to improve or maintain the operation performance.

Input Name: Aerial application operation resource provision status
Input Definition: Continuously updated information regarding the conditions that exist in the resource provision planning.

Control Name: Resource need identification directives
Control Definition: A set of policies/procedures/instructions that directs resource need identification.

Output Name: Resource needs
Output Definition: Identify any and all resources that are required for the aerial application operation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Control Name: Resource provision plan
Control Definition: Definition of resources necessary to support planned operations such as perform personnel training, perform aircraft maintenance, inspection and engineering, and perform aerial application operations.

5.7.3 A5.3—Collect Resource Information.

This function collects available external source data based on which desired vendors are identified to procure required resources to meet the resource needs. This function also collects personnel information for human resource provision.

Input Name: Resource needs
Input Definition: Identify any and all resources that are required for the aerial application operation.

Control Name: Resource information collection directives
Control Definition: A set of policies/procedures/instructions that directs resource information collection.

Output Name: Recommended vendor/contractor information
Output Definition: Recommend the source of various resources required in the aerial application operation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Resource information
Input Definition: Information regarding resources such as fuel (grade, quality, availability, audits, and cost), chemical supplies, staffing, human resources requirements, ground facility/supply equipment, and automation. This also includes information regarding operational needs for improving operations such as personnel training, maintenance and operational program changes, and maintenance and operational requirements.

Output Name: Personnel information
Output Definition: Information of personnel including existing employees and candidates for a company to consider to reassign or hire people to meet the requirement of human resources.

5.7.4 A5.1—Procure Resources.

This function contacts resource providers (vendors and/or contractors) to procure required resources or to contract some work to contractors.

Input Name: Recommended vendor/contractor information
Input Definition: Recommend the source of various resources required in the aerial application operation.

Control Name: Resource procurement directives
Control Definition: A set of policies/procedures/instructions that directs resource procurement.

Output Name: Request for resources
Output Definition: The actual request for or order of the necessary resources.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

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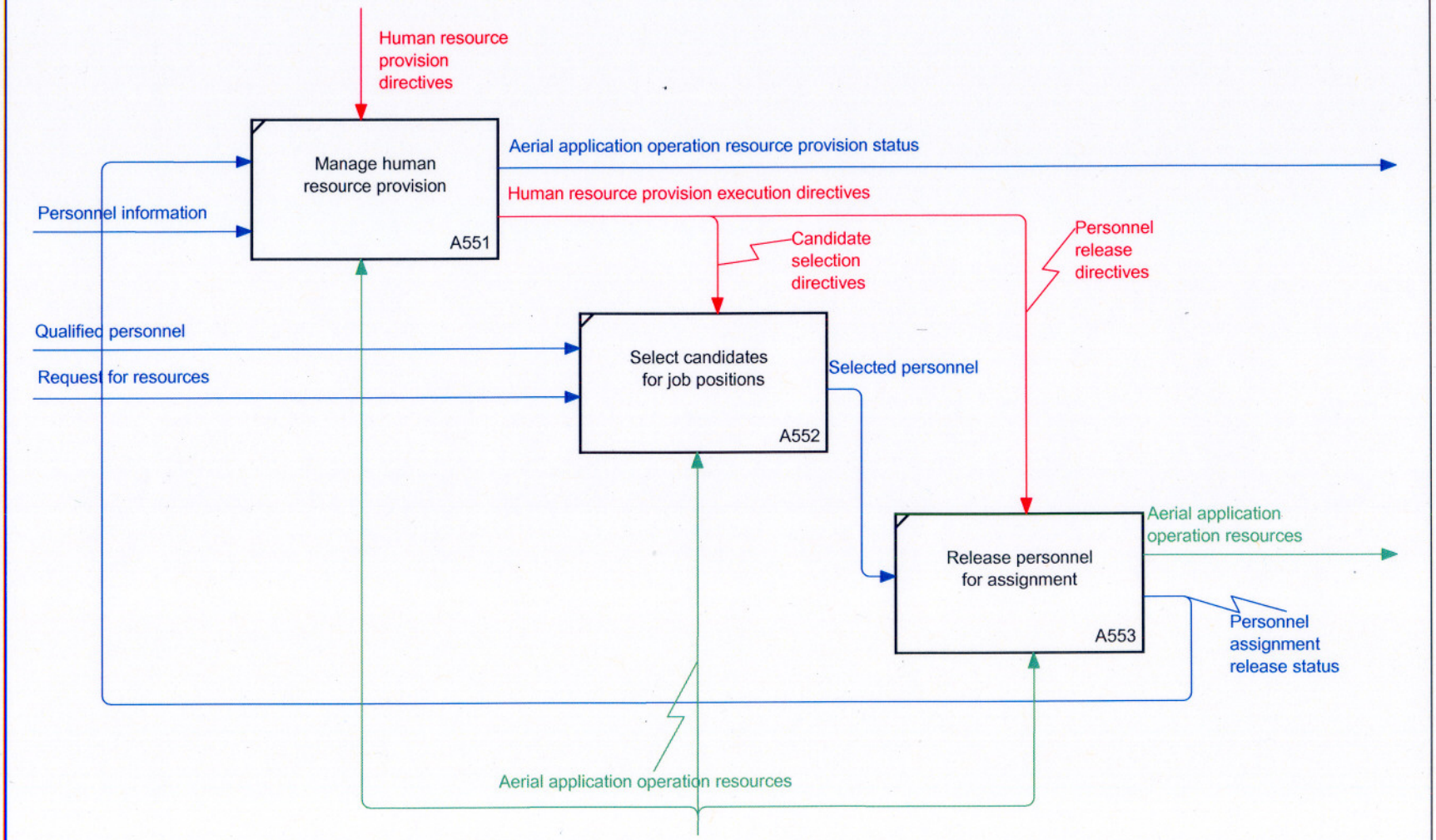
	PROJECT: 14 CFR Part 137 Functional Modeling	REV: 7/1/2004	DRAFT		
			RECOMMENDED		
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION		A5



NODE:	TITLE:	NUMBER:
A5.5	Provide human resources	

5.7.5 A5.5—Provide Human Resources.

This function hires new people and/or reassigns existing employees to provide human resources to meet the needs for human resources.

Input Name: Qualified personnel
Input Definition: Persons qualified for conducting certain tasks.

Control Name: Human resource provision directives
Control Definition: A set of policies/procedures/instructions that directs human resource provision.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Request for resources
Input Definition: The actual request for or order of the necessary resources.

Output Name: Aerial application operation resource provision status
Output Definition: Continuously updated information regarding the conditions that exist in the resource provision planning.

Input Name: Personnel information
Input Definition: Information of personnel including existing employees and candidates for a company to consider to reassign or hire people to meet the requirement of human resources.

5.7.5.1 A5.5.1—Manage Human Resources.

This function directs, schedules, and coordinates the following component activities of aircraft operation resource provision: Select candidates for job positions and Release personnel for assignment. It provides directives, defines requirements and controls for the

execution of those activities, and also checks that the execution is done in accordance with company policies and procedures and any required regulations for these activities.

Input Name: Personnel assignment release status
Input Definition: Continuously updated information regarding the conditions that exist in personnel assignment release.

Control Name: Human resource provision directives
Control Definition: A set of policies/procedures/instructions that directs human resource provision.

Output Name: Aerial application operation resource provision status
Output Definition: Continuously updated information regarding the conditions that exist in the resource provision planning.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Personnel information
Input Definition: Information of personnel including existing employees and candidates for a company to consider to reassign or hire people to meet the requirement of human resources.

Output Name: Human resource provision execution directives
Output Definition: A set of policies/procedures/instructions that directs execution of human resource provision.

5.7.5.2 A5.5.2—Select Candidates for Job Positions.

The function screens candidates for employment based on the following criteria: background check, personnel qualifications, experience, flight hours, and other prerequisite requirements.

Input Name: Qualified personnel
Input Definition: Persons qualified for conducting certain tasks.

Control Name: Candidate selection directives
Control Definition: A set of policies/procedures/instructions that directs candidate selection.

Output Name: Selected personnel
Output Definition: Selection of the required, trained personnel that meet the requirements and needs of the various phases of the application operation.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Input Name: Request for resources
Input Definition: The actual request for or order of the necessary resources.

5.7.5.3 A5.5.3—Release Personnel for Assignment.

This function releases trained, qualified, and authorized personnel for duty.

Input Name: Selected personnel
Input Definition: Selection of the required, trained personnel that meet the requirements and needs of the various phases of the application operation.

Control Name: Personnel release directives
Control Definition: A set of policies/procedures/instructions that directs the personnel release.

Mechanism Name: Aerial application operation resources
Mechanism Definition: The components necessary for the successful accomplishment of the aerial application operations. The components include, but are not limited to, properly trained personnel, sufficient budget, required information, material, equipment, tools, and any other required resources to accomplish the activity. These fall under the following categories, namely: Aerial application repair resources, Aerial application training resources, Fuel replenishment resources, Ground handling resources, Human

resources provision resources, Operation planning resources, Operational control resources, Personnel training resources, Preflight ground operations resources, and Security service resources.

Output Name: Personnel assignment release status
Output Definition: Continuously updated information regarding the conditions that exist in personnel assignment release.

6. REFERENCES.

1. Requirements Document for System Approach for Safety Oversight (SASO), dated 28 July 2003, Version 6.

2. System Approach for Safety Oversight (SASO) General Aviation RE&D Requirements FY 2004-2006, Version 13A.

3. Air Carrier Operations System Model, dated June 20, 2002, Version 2.0

4. 14 CFR Part 137—Agricultural Aircraft Operations

APPENDIX A—CONTROLS AND HAZARDS

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3	Perform aircraft maintenance, inspection & engineering		
A.3.1	Manage MIE	FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars (AC)	Disregard of Federal Aviation Administration (FAA) and other safety information
A.3.1	Manage MIE	None	Inadequate financial resources
A.3.1	Manage MIE	14 CFR Part 137.41	Inadequate human resources to do proper management/ scheduling
A.3.1	Manage MIE	None	Inadequate scheduling tools
A.3.1	Manage MIE	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1	Inadequate standard operating procedure (SOP)
A.3.1	Manage MIE	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Insufficient/Inadequate tools
A.3.1	Manage MIE	National Program Guidelines (NPG) HBAW 00-19: Safety Performance Analysis System: Usage or Surveillance and Certification Planning, Investigation, and Work Program Management	Lack of inspection pressure from the FAA
A.3.1	Manage MIE	None	Lack of proper planning
A.3.1	Manage MIE	None	Lack of subject matter expertise to manage maintenance, inspection and engineering (MIE)
A.3.1	Manage MIE	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1	Maintenance needs conflict with equipment needs
A.3.1	Manage MIE	None	Maintenance needs not forecasted adequately
A.3.1	Manage MIE	None	Management company culture
A.3.1	Manage MIE	14 CFR Part 137.71	Poor organization of records

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3.1	Manage MIE	14 CFR Part. 91.13 Careless or Reckless Operation. (Applicable to Operations), 14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required	Willingness to accept risk, compromising safety
A.3.2	Perform aircraft maintenance	14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Improperly performed maintenance
A.3.2	Perform aircraft maintenance	14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Inadequate maintenance
A.3.2	Perform aircraft maintenance	Applicable to 14 CFR Part 137 Operators using 14 CFR Part 145 Repair Stations, 14 CFR Part 145.103 Housing, Facilities, Equipment, Materials, and Data	Poor physical environment. (e.g., repair in freezing rain)
A.3.2.1	Manage aircraft maintenance	None	Inadequate financial resources
A.3.2.1	Manage aircraft maintenance	None	Inadequate human resources
A.3.2.1	Manage aircraft maintenance	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements. FSAW 02-10: Electrical Wiring Interconnection System (EWIS) Protections & Cautions During Maintenance & Alteration FSAW 02-07: Potential Hazard to Aircraft Wiring Systems FSAW 03-03 Special Flight	Inadequate training

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
		Authorization (SFA) for Canadian "Owner- Maintenance" Category Aircraft HBAW 98-14A: North American Free Trade Agreement (NAFTA)	
A.3.2.1	Manage aircraft maintenance	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Insufficient/inadequate tools
A.3.2.1	Manage aircraft maintenance	None	Lack of expertise/knowledge to manage maintenance
A.3.2.1	Manage aircraft maintenance	National Program Guidelines (NPG) HBAW 00-19: Safety Performance Analysis System: Usage for Surveillance and Certification Planning, Investigation, and Work Program Management	Lack of FAA oversight
A.3.2.1	Manage aircraft maintenance	None	Lack of or insufficient time to coordinate maintenance activities
A.3.2.1	Manage aircraft maintenance	14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Lack of quality control/assurance program
A.3.2.1	Manage aircraft maintenance	14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Lack of service documentation
A.3.2.1	Manage aircraft maintenance	14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required	Outdated maintenance manual

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3.2.1	Manage aircraft maintenance	14 CFR Part 137.71	Poor organization of records
A.3.2.2	Evaluate aircraft		
A.3.2.2.1	Manage aircraft evaluation	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1	Inadequate SOP
A.3.2.2.1	Manage aircraft evaluation	None	Inefficient use of resources (finances, human, etc)
A.3.2.2.1	Manage aircraft evaluation	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements	Lack of experience/skill
A.3.2.2.1	Manage aircraft evaluation	None	Lack of management skill
A.3.2.2.1	Manage aircraft evaluation	None	Lack of or insufficient time to coordinate maintenance activities
A.3.2.2.1	Manage aircraft evaluation	None	Management attitude
A.3.2.2.1	Manage aircraft evaluation	None	Poor communication between management function and function underneath (detect, diagnose, assess
A.3.2.2.2	Detect/Diagnose aircraft discrepancies	14 CFR Part 91.3 Responsibility and authority of the pilot in command	Failure to follow SOP (preflight, postflight, in-flight)
A.3.2.2.2	Detect/Diagnose aircraft discrepancies	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Inadequate reference material
A.3.2.2.2	Detect/Diagnose aircraft discrepancies	None	Insufficient communication between pilot and maintenance group
A.3.2.2.2	Detect/Diagnose aircraft discrepancies	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Insufficient/inadequate tools

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3.2.2.2	Detect/Diagnose aircraft discrepancies	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements.	Lack of experience/skill
A.3.2.2.2	Detect/Diagnose aircraft discrepancies	None	Not enough time available for inspection
A.3.2.2.3	Diagnose aircraft discrepancies	None	Failure to duplicate discrepancies
A.3.2.2.3	Diagnose aircraft discrepancies	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Inadequate diagnostic procedures
A.3.2.2.3	Diagnose aircraft discrepancies	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1	Inadequate documentation available
A.3.2.2.3	Diagnose aircraft discrepancies	None	Incomplete description of the discrepancy
A.3.2.2.3	Diagnose aircraft discrepancies	None	Insufficient time to diagnose
A.3.2.2.3	Diagnose aircraft discrepancies	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements.	Lack of experience/skill
A.3.2.2.3	Diagnose aircraft discrepancies	None	No action scheduled to address discrepancy
A.3.2.2.3	Diagnose aircraft discrepancies	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Outdated maintenance manual
A.3.2.2.3	Diagnose aircraft discrepancies	None	Wrong action recommended
A.3.2.2.4	Assess aircraft discrepancies	None	Inadequate estimate of labor required
A.3.2.2.4	Assess aircraft discrepancies	None	Inadequate estimate of parts required

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3.2.2.4	Assess aircraft discrepancies	None	Lack of parts cost/availability information
A.3.2.2.4	Assess aircraft discrepancies	None	Lack of skilled personnel
A.3.2.3	Perform scheduled/ nonscheduled maintenance		
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 HBAW 95-13A: Maintenance of Restricted Category Surplus Military (RCSM) Aircraft HBAW 96-08: Aviation Safety Inspectors (ASI) Guidance for Detecting Unapproved Parts to Accomplish PTRS Codes 3622/5622,Contd. FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Failure to follow manufacturing recommendations
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	None	Inadequate human resources
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements	Inadequate training
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	14 CFR Parts 91, 43, 39	Lack of inspection equipment/tools
A.3 .2.3.1	Manage scheduled/ nonscheduled maintenance	National Program Guidelines (NPG) HBAW 00-19: Safety Performance Analysis System: Usage for Surveillance and Certification	Lack of oversight

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
		Planning, Investigation, and Work Program Management	
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	None	Lack of requirement to perform quality assurance/quality control functions
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	14 CFR Part 137.53 Operation over congested areas: Pilots and aircraft. HBAW 98-11: Issuing Operating Limitations for Experimental Category, Amateur-Built Aircraft for Flight Over Densely Populated Areas (14 CFR 91.319(c))	Lack of schedule maintenance requirements
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1	Outdated maintenance manual
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	14 CFR Part 137.71	Poor organization of records
A.3.2.3.1	Manage scheduled/ nonscheduled maintenance	None	SOPs not followed
A.3.2.3.2	Perform aircraft repair	Applicable to 14 CFR Part 137 Operators using 14 CFR Part 145 Repair Stations, 14 CFR Part 145.103 Housing, Facilities, Equipment, Materials, and Data	Poor physical environment. (e.g., repair in freezing rain)
A.3.2.3.2	Perform aircraft repair	14 CFR Part 43 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Improper material used
A.3.2.3.2	Perform aircraft repair	14 CFR Part 43	Improper protection of repair
A.3.2.3.2	Perform aircraft repair	14 CFR Part 91, 39	Inadequate maintenance
A.3.2.3.2	Perform aircraft repair	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience	Inadequate technician skills

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
		requirements, Part 65.79 Skill requirements.	
A.3.2.3.2	Perform aircraft repair	None	Incorrect adjustments
A.3.2.3.2	Perform aircraft repair	None	Incorrect repair specified
A.3.2.3.2	Perform aircraft repair	14 CFR Parts 91, 43, 39, FAA Order 8300.10, 8700.1 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Insufficient/inadequate tools
A.3.2.3.2	Perform aircraft repair	None	Lack of time to perform repair
A.3.2.3.2	Perform aircraft repair	14 CFR Part 43 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Mechanical installation done wrong
A.3.2.3.2	Perform aircraft repair	None	Pressure to complete repair quickly
A.3.2.3.2	Perform aircraft repair	Applicable to 14 CFR Part 137 Operators using 14 CFR Part 145 Repair Stations, 14 CFR Part 145.103 Housing, Facilities, Equipment, Materials, and Data FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Proper storage and facility not available
A.3.2.3.2	Perform aircraft repair	14 CFR Parts 91, 43	Repair data not available
A.3.2.3.2	Perform aircraft repair	14 CFR Part 91	Required parts not replaced
A.3.2.3.2	Perform aircraft repair	14 CFR Parts 91, 43, 39 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Service instructions not followed

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3.2.3.2	Perform aircraft repair	14 CFR Part 21 HBAW 96-08: Aviation Safety Inspectors (ASI) Guidance for Detecting Unapproved Parts to Accomplish PTRS Codes 3622/5622,Contd.	Usage of suspected unapproved parts (SUPs)
A.3.2.3.3	Perform aircraft test	None	Crew fatigue
A.3.2.3.3	Perform aircraft test	None	Failure to follow company policies
A.3.2.3.3	Perform aircraft test	14 CFR Parts 91, 43, 39 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Improperly calibrated tools
A.3.2.3.3	Perform aircraft test	14 CFR Parts 91, 43, 39 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Inadequate testing equipment
A.3.2.3.3	Perform aircraft test	14 CFR Parts 91, 43, 39 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Incorrect test standards
A.3.2.3.3	Perform aircraft test	14 CFR Part 91 FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Inspection not performed
A.3.2.3.3	Perform aircraft test	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements.	Lack of experience/skill
A.3.2.3.3	Perform aircraft test	None	Lack of time to perform test
A.3.2.3.3	Perform aircraft test	None	Maintenance and testing done by the same individual

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3.2.3.3	Perform aircraft test	None	Unclear SOPs
A.3.3	Perform ground equipment maintenance	None	Financial pressure/strain
A.3.3	Perform ground equipment maintenance	None	Inadequate resources for repairs
A.3.3	Perform ground equipment maintenance	None	Inadequate time available for repair
A.3.3	Perform ground equipment maintenance	None	Inappropriate/improper/ inoperative equipment used
A.3.3	Perform ground equipment maintenance	AC 00-34A: Aircraft Ground Handling and Servicing	Malfunction of ground equipment, leading to time constraint in the operational phase
A.3.3	Perform ground equipment maintenance	FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Not maintaining certification requirements of the ground equipment
A.3.4	Perform engineering support		
A.3.4.1	Manage engineering support	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements.	Lack of experience/skill
A.3.4.1	Manage engineering support	None	Lack of financial resources
A.3.4.1	Manage engineering support	National Program Guidelines (NPG) HBAW 00-19: Safety Performance Analysis System: Usage for Surveillance and Certification Planning, Investigation, and Work Program Management.	Lack of oversight by FAA
A.3.4.1	Manage engineering support	None	Lack of SOPs

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.3.4.1	Manage engineering support	14 CFR Part. 91.13 Careless or reckless operation. (Applicable to Operations), 14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required	Willingness to accept risk, compromising safety
A.3.4.2	Perform standardization & modification	14 CFR Parts 91, 43	Inadequate maintenance record keeping
A.3.4.2	Perform standardization & modification	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements.	Lack of experience/skill
A.3.4.2	Perform standardization & modification	None	Lack of financial resources
A.3.4.2	Perform standardization & modification	National Program Guidelines (NPG) HBAW 00-19: Safety Performance Analysis System: Usage for Surveillance and Certification Planning, Investigation, and Work Program Management.	Lack of oversight by the FAA
A.3.4.2	Perform standardization & modification	14 CFR Parts 91, 43. 21 HBAW 96-08: Aviation Safety Inspectors (ASI) Guidance for Detecting Unapproved Parts to Accomplish PTRS Codes 3622/5622,Contd. FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Performing unapproved repairs
A.3.4.2	Perform standardization & modification	None FAA Notices, FAA Publications, Airworthiness Directives, Aviation Maintenance Alerts, Advisory Circulars	Poor organization of FAA supplied information (FARs, ACs, etc)
A.3.4.2	Perform	14 CFR Part. 91.13 Careless or	Willingness to accept risk,

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
	standardization & modification	reckless operation. (Applicable to Operations), 14 CFR Part 43.13 Performance Rules (General), 14 CFR Part 91.405 Maintenance Required	compromising safety
A.3.4.3	Perform aircraft operation support	14 CFR Part 65.73 Ratings, Part 65.75 Knowledge requirements, Part 65.77 Experience requirements, Part 65.79 Skill requirements.	Lack of experience/skill
A.3.4.3	Perform aircraft operation support	None	Lack of financial resources
A.3.4.3	Perform aircraft operation support	National Program Guidelines (NPG) HBAW 00-19: Safety Performance Analysis System: Usage for Surveillance and Certification Planning, Investigation, and Work Program Management.	Lack of oversight by the FAA
A.3.4.3	Perform aircraft operation support	None	Lack of proper planning
A.4	Perform aerial application operations		
A.4.1	Manage aerial operations	FAA Order 8700 chapter 115, 116, 117, 118, 119, 120, 121, 122 NTSB 830 14 CFR Parts 61, 91, 137 Hazmat/TSA FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident HBGA 99-14A: Streamlined Administrative Action Process	Crew inadequately trained

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.1	Manage aerial operations	NTSB 830: Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage Mail Cargo, and Records	Failure to schedule operation properly
A.4.1	Manage aerial operations	14 CFR Parts 91, 137 FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident HBGA 99-14A: Streamlined Administrative Action Process	Inadequate dispatch information
A.4.1	Manage aerial operations	Include all operations FAA Orders, ACs, bulletins, FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident 14 CFR Part 91 HBGA 99-14A: Streamlined Administrative Action Process	Inadequate information about target field
A.4.1	Manage aerial operations	Hazmat/TSA 14 CFR Part 91	Inadequate situation awareness
A.4.1	Manage aerial operations	FAA Order 2150.3 Compliance and Enforcement 14 CFR Part 91 HBGA 99-14A: Streamlined administrative action process	Inadequate SOP
A.4.1	Manage aerial operations	FAA Order 8020.11 Aircraft Accident and Incident	Pressure on manager to complete work

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.1	Manage aerial operations	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process	Wrong dispersant/chemical used
A.4.2	Perform dispensing operation		
A.4.2.1	Manage dispensing operation (pilot)	14 CFR Parts 61, 91, 137 FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident notification, investigation and reporting 14 CFR Parts 91, 43 FAA Order 8130.2D: Airworthiness certification of aircraft and related products HBGA 99-14A: Streamlined Administrative Action Process	Aircraft not airworthy
A.4.2.1	Manage dispensing operation (pilot)	FAA Order 8700 chapter 118, 119, 120, 121, 122 Hazmat FAA Security/state laws OSHA	Chemical contamination of crew
A.4.2.1	Manage dispensing operation (pilot)	NTSB 830: Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage Mail Cargo, and Records	Crew inadequately trained

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.1	Manage dispensing operation (pilot)	FAA Order 2150.3 Compliance and Enforcement 14 CFR Part 91 HBGA 99-14A: Streamlined Administrative Action Process AC 91-23A: Pilot's Weight and Balance Book Chapter 118: Administer knowledge and skill test to an agricultural pilot AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 60-22: Aeronautical Decision Making	Inadequate flight route planning
A.4.2.1	Manage dispensing operation (pilot)	FAA Order 8020.11 Aircraft Accident and Incident FAA Order 2150.3 Compliance and Enforcement 14 CFR Part 91 HBGA 99-14A: Streamlined Administrative Action Process AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 60-22: Aeronautical Decision Making	Inadequate information about target field

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.1	Manage dispensing operation (pilot)	FAA Order 2150.3 Compliance and Enforcement 14 CFR Parts 91, 137 FAA Order 8700 (Chapter 118) Air flight manual (AFM) AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge HBGA 99-14A: Streamlined Administrative Action Process	Inadequate swath planning
A.4.2.1	Manage dispensing operation (pilot)	FAA Security/State laws	Incorrect chemical handling
A.4.2.1	Manage dispensing operation (pilot)	14 CFR Part 91 HBGA 00-17: Fuel Reserve Computation and Calibrations-14 CFR Part 133 Operators AC 20-29B: Subject: Use of Aircraft Fuel Anti-Icing Additives	Incorrect fuel calculations

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.1	Manage dispensing operation (pilot)	FSAW 01-04: Landing Gear Spray for Foot-and-Mouth Disease HBGA 00-17: Fuel Reserve Computation and Calibrations-14 CFR Part 133 Operators HBGA 99-13: Operations Over Densely Populated Areas, Experimental, Amateur-Built Aircraft FSGA 00-04A: Resetting Tripped Circuit Breakers FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FSGA 97-03: Standard Procedures for Fuel Planning for Part 133 Operations AC 00-6A: Aviation Weather AC 00-24B: Thunderstorms AC 00-30B: Atmospheric Turbulence Avoidance AC 00-45E: Aviation Weather Services AC 00-54: Pilot Windshear Guide AC 00-57: Hazardous Mountain Winds and Their Visual Indicators AC 20-34D: Prevention of Retractable Landing Gear Failures	Pressure on pilot to complete work

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.1	Manage dispensing operation (pilot)	FAA Order 2150.3 Compliance and Enforcement 14 CFR Parts 91, 43 FAA Order 8130.2D AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 60-22: Aeronautical Decision Making FAA Order 8020.11 Aircraft Accident and Incident notification, investigation and reporting AC 91-23A: Pilot's Weight and Balance Book HBGA 99-14A: Streamlined Administrative Action Process	AC balance wrong
A.4.2.2	Perform takeoff	14 CFR Parts 91, 137 Manufacture recommendations Maintenance manuals	Aging aircraft/structural failure
A.4.2.2	Perform takeoff	FAA Orders 8700 Chapter 118 14 CFR Parts 61, 91, 137 FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident notification, investigation and reporting 14 CFR Parts 91, 43 FAA Order 8130.2D HBGA 99-14A: Streamlined Administrative Action Process	Aircraft not airworthy

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	FSGA 00-06: Increased Surveillance and Testing of Surface Movement Operations 14 CFR Parts 91, 43 FAA Order 8130.2D AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Book	Aircraft overloaded
A.4.2.2	Perform takeoff	1320.46C Advisory Circular System Multiple Advisory circular references AC 20-73: Aircraft Ice Protection AC 91-51A: Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems	Carb icing
A.4.2.2	Perform takeoff	AC 00-6A: Aviation Weather FAA Order 8700 Chapters 118, 119, 120, 121, 122 Hazmat FAA Security/state laws OSHA	Chemical contamination of crew

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	14 CFR Part 91 AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Collision with other aircraft
A.4.2.2	Perform takeoff	AC 60-22: Aeronautical Decision Making	Crew fatigue
A.4.2.2	Perform takeoff	AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Downhill/uphill runway
A.4.2.2	Perform takeoff	AC 00-57: Hazardous Mountain Winds and Their Visual Indicators AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Downwind operations

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	AC 20-30B: Aircraft Position Light and Anticollision Light Installations 14 CFR Part 91 FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process HBGA 00-17: Fuel Reserve Computation and Calibrations-14 CFR Part 133 Operators AC 20-119: Fuel Drain Valves AC 20-125: Water in Aviation Fuels AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Fuel starvation
A.4.2.2	Perform takeoff	FAA Order 8700.1 (Chapter 118) FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Improper aircraft configuration

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	AC 20-34D: Prevention of Retractable Landing Gear Failures 14 CFR Part 91 FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AFM Rotorcraft Manual (RFM) Pilot check list	Improper fuel mixture carb adjustment

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Book 14 CFR Part 91 AFM 8700.1 (Chapter 118) HBGA 00-17: Fuel Reserve Computation and Calibrations-14 CFR Part 133 Operators	Inadequate/improper preflight check
A.4.2.2	Perform takeoff	AC 20-60 Accessibility to Excess Emergency Exits AC 00-57: Hazardous Mountain Winds and Their Visual Indicators AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Inadequate airstrip

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	AC 20-111: Communication Interference Caused by Unintentional Keyed Microphones AC 20-60: Accessibility to Excess Emergency Exits AC 00-57: Hazardous Mountain Winds and Their Visual Indicators AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-84B: Role of Preflight Preparation	Object at end of runway too high to clear
A.4.2.2	Perform takeoff	AC 20-111: Communication Interference Caused by Unintentional Keyed Microphones AC 20-60: Accessibility to Excess Emergency Exits AC 00-57: Hazardous Mountain Winds and Their Visual Indicators AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-84B: Role of Preflight Preparation	Obstruction on runway

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	FAA Order 2150.3 Compliance and Enforcement FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Part 91	Pilot's weather limitations
A.4.2.2	Perform takeoff	FAA Order 8700.1 (Chapter 118) AFM AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-67C: Stall and Spin Awareness Training AC 60-4A: Pilot's Spatial Disorientation	Stall
A.4.2.2	Perform takeoff	AFM AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8700.1 (Chapter 118)	Unintended forced landing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.2	Perform takeoff	AC 20-42C Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Book 14 CFR Part 91 AFM FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation AC 20-119: Fuel Drain Valves AC 20-125: Water in Aviation Fuels	Water in fuel

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	14 CFR Parts 91, 137 FAA Order 2150.3 Compliance and Enforcement 14 CFR Parts 91, 43 FAA Order 8130.2D AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Book HBGA 99-14A: Streamlined Administrative Action Process	AC balance wrong
A.4.2.3	Perform ferry	FSAW 00-08A: Resetting Tripped Circuit Breakers 14 CFR Parts 91, 137 Manufacture recommendations Maintenance manuals	Aging aircraft/structural failure

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	HBGA 99-09: Occupancy of any Observer's Seat Located on the Flight Deck FAA Order 8700 Chapter 118 14 CFR Parts 61, 91, 137 FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident 14 CFR Parts 91, 43 FAA Order 8130.2D HBGA 99-14A: Streamlined Administrative Action Process	Aircraft not airworthy

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	HBGA 99-13: Operations Over Densely Populated Areas, Experimental, Amateur-Built Aircraft FSGA 00-06: Increased Surveillance and Testing of Surface Movement Operations 14 CFR Parts 91, 43 FAA Order 8130.2D AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Book	Aircraft overloaded
A.4.2.3	Perform ferry	FSGA 00-05: Standard Operating Procedures for Flight Deck Crewmembers (AC 120-71), Including Stabilized Approach 1320.46C Advisory Circular System Multiple Advisory Circular References AC 20-73: Aircraft Ice Protection	Carb icing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Parts 91, 137 AFM FAA Order 8700.1 (Chapter 118)	Controlled flight into terrain (CFIT)
A.4.2.3	Perform ferry	FSGA 97-03: Standard Procedures for Fuel Planning for Part 133 Operations AC 00-6A: Aviation Weather FAA Order 8700 Chapters 118, 119, 120, 121, 122 Hazmat FAA Security/state laws OSHA	Chemical contamination of crew

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	AC 20-29B Subject: Use of Aircraft Fuel Anti-Icing Additives 14 CFR Part 91 AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Collision with other aircraft
A.4.2.3	Perform ferry	FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Parts 91, 137 AFM FAA Order 8700.1 (Chapter 118)	Collision with power line

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Parts 91, 137 AFM FAA Order 8700.1 (Chapter 118)	Collision with tall objects (charted, uncharted, lighted, and unlighted)
A.4.2.3	Perform ferry	AC 60-22: Aeronautical Decision Making	Crew fatigue

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	AC 20-30B: Aircraft Position Light and Anticollision Light Installations 14 CFR Part 91 FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 20-119: Fuel Drain Valves AC 20-125: Water in Aviation Fuels AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-84B: Role of Preflight Preparation	Fuel starvation
A.4.2.3	Perform ferry	FAA Order 8700.1 (Chapter 118) FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Improper aircraft configuration

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Inadequate situation awareness
A.4.2.3	Perform ferry	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Part 91	Pilot's weather limitations
A.4.2.3	Perform ferry	AC 00-57: Hazardous Mountain Winds and Their Visual Indicators FAA Order 8700.1 (Chapter 118) AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Stall
A.4.2.3	Perform ferry	FAA Order 2150.3 Compliance and Enforcement AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8700.1 (Chapter 118)	Unintended forced landing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.3	Perform ferry	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Book 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation AC 20-119: Fuel Drain Valves AC 20-125: Water in Aviation Fuels	Water in fuel

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	14 CFR Parts 91, 137 FAA Order 2150.3 Compliance and Enforcement 14 CFR Parts 91, 43 FAA Order 8130.2D: Airworthiness Certification of Aircraft and Related Products AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Book HBGA 99-14A: Streamlined Administrative Action Process	AC balance wrong
A.4.2.4	Perform dispensing	FSAW 00-08A: Resetting Tripped Circuit Breakers 14 CFR Parts 91, 137 Manufacture recommendations Maintenance manuals	Aging aircraft/structural failure

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	FSAW 00-08A: Resetting Tripped Circuit Breakers HBGA 99-09: Occupancy of any Observer's Seat Located on the Flight Deck FAA Orders 8700 chapter 118 14 CFR Parts 61, 91, 137 FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident 14 CFR Parts 91, 43 HBGA 99-14A: Streamlined Administrative Action Process	Aircraft not airworthy

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	HBGA 99-13: Operations Over Densely Populated Areas, Experimental, Amateur-Built Aircraft FSGA 00-06 Increased Surveillance and Testing of Surface Movement Operations 14 CFR Parts 91, 43 FAA Order 8130.2D: Airworthiness Certification of Aircraft and Related Products AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Book	Aircraft overloaded
A.4.2.4	Perform dispensing	FSGA 00-05: Standard Operating Procedures for Flight Deck Crewmembers (AC 120-71), Including Stabilized Approach AC 1320.46C Advisory Circular System Multiple Advisory Circular References AC 20-73: Aircraft ice protection	Carb icing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	FSGA 00-08: Portable Equipment & Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Parts 91, 137 AFM FAA Order 8700.1 (Chapter 118)	CFIT
A.4.2.4	Perform dispensing	FSGA 97-03: Standard Procedures for Fuel Planning for Part 133 Operations AC 00-6A: Aviation Weather FAA Order 8700 Chapters 118, 119, 120, 121, 122 Hazmat FAA Security/state laws OSHA	Chemical contamination of crew
A.4.2.4	Perform dispensing		Collateral damage by dispersant agent

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	AC 20-29B Subject: Use of Aircraft Fuel Anti-Icing Additives 14 CFR Part 91 AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Collision with other aircraft
A.4.2.4	Perform dispensing	AC 20-29B: Subject: Use of Aircraft Fuel Anti-Icing Additives 14 CFR Part 91 AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Collision with power line
A.4.2.4	Perform dispensing	FSGA 00-08: Portable Equipment & Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making	Collision with tall objects (charted, uncharted, lighted, and unlighted)
A.4.2.4	Perform dispensing	AC 60-22: Aeronautical Decision Making	Crew fatigue
A.4.2.4	Perform dispensing	FAA Order 2150.3 Compliance and Enforcement AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8700.1 (Chapter 118)	Density altitude

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	AC 20-30B Aircraft Position Light and Anticollision Light Installations 14 CFR Part 91 FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 20-119: Fuel Drain Valves AC 20-125: Water in aviation fuels AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-84B: Role of Preflight Preparation	Fuel starvation

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	AC 20-34D Prevention of Retractable Landing Gear Failures 14 CFR Part 91 FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AFM RFM Pilot check list	Improper fuel mixture carb adjustment
A.4.2.4	Perform dispensing	FAA Order 2150.3 Compliance and Enforcement 14 CFR Parts 91, 137 FAA Order 8700 (Chapter 118) AFM AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge HBGA 99-14A: Streamlined Administrative Action Process	Improper swath runs

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AFM	Inadequate situation awareness
A.4.2.4	Perform dispensing	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Book 14 CFR Part 91 AFM FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation	Inadequate/improper preflight check

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	FAA Order 8700.1 (Chapter 118) AFM AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Stall
A.4.2.4	Perform dispensing	AFM AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8700.1 (Chapter 118)	Unintended forced landing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.4	Perform dispensing	AC 20-42C: Hand Fire Extinguishers For Use In Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Book 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) FSGA 97-03 AC 20-119: Fuel Drain Valves AC 20-125: Water in Aviation Fuels	Water in fuel

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	14 CFR Parts 91, 137 FAA Order 2150.3 Compliance and Enforcement 14 CFR Parts 91, 43 FAA Order 8130.2D AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Book HBGA 99-14A: Streamlined Administrative Action Process	AC balance wrong
A.4.2.5	Perform landing	FSAW 00-08A: Resetting Tripped Circuit Breakers 14 CFR Parts 91, 137 Manufacture recommendations Maintenance manuals	Aging aircraft/structural failure

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	FSAW 00-08A: Resetting Tripped Circuit Breakers HBGA 99-09: Occupancy of any Observer's Seat Located on the Flight Deck FAA Orders 8700 Chapter 118 14 CFR Parts 61, 91, 137 FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident 14 CFR Parts 91, 43 FAA Order 8130.2D: Airworthiness Certification of Aircraft and Related Products HBGA 99-14A: Streamlined Administrative Action Process	Aircraft not airworthy

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	HBGA 99-13: Operations Over Densely Populated Areas, Experimental, Amateur-Built Aircraft FSGA 00-06: Increased Surveillance and Testing of Surface Movement Operations 14 CFR Parts 91, 43 AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Book	Aircraft overloaded
A.4.2.5	Perform landing	1320.46C Advisory Circular System Multiple Advisory Circular References	Carb icing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Parts 91, 137 FAA Order 8700.1 (Chapter 118)	CFIT
A.4.2.5	Perform landing	FSGA 97-03: Standard Procedures for Fuel Planning for Part 133 Operations AC 00-6A: Aviation Weather FAA Order 8700 Chapters 118, 119, 120, 121, 122 Hazmat FAA Security/state laws OSHA Fire Department	Chemical contamination of crew

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Collision with object on runway
A.4.2.5	Perform landing	AC 20-29B Subject: Use of Aircraft Fuel Anti-Icing Additives 14 CFR Part 91 AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Collision with other aircraft
A.4.2.5	Perform landing	FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Parts 91, 137 FAA Order 8700.1 (Chapter 118)	Collision with power line

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	FSGA 00-08: Portable Equipment and Carry-On Devices Intended for Flight Deck Use FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AFM	Collision with tall object
A.4.2.5	Perform landing	AC 60-22: Aeronautical Decision Making	Crew fatigue
A.4.2.5	Perform landing	AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-84B: Role of Preflight Preparation	Downhill/uphill runway
A.4.2.5	Perform landing	AC 00-57: Hazardous Mountain Winds and Their Visual Indicators AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-84B: Role of Preflight Preparation	Downwind operations

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	FAA Order 8700.1 (Chapter 118) FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Improper aircraft configuration
A.4.2.5	Perform landing	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Inadequate situation awareness

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Part 91 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation	Inadequate/improper preflight check
A.4.2.5	Perform landing	AC 20-60: Accessibility to Excess Emergency Exits AC 00-57: Hazardous Mountain Winds and Their Visual Indicators AC 60-22: Aeronautical Decision Making 14 CFR Parts 61, 91, 135 AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 61-84B: Role of Preflight Preparation	Inadequate airstrip

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Part 91	Pilot's weather limitations
A.4.2.5	Perform landing	FAA Order 8700.1 (Chapter 118) AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge	Stall
A.4.2.5	Perform landing	FAA Order 2150.3 Compliance and Enforcement AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8700.1 (Chapter 118)	Unintended forced landing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.2.5	Perform landing	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation AC 20-119: Fuel Drain Valves AC 20-125: Water in Aviation Fuels	Water in fuel

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.1	Manage ground operation	FSAW 00-08A: Resetting Tripped Circuit Breakers HBGA 99-09: Occupancy of any Observer's Seat Located on the Flight Deck FAA Order 8700 Chapter 118 14 CFR Parts 61, 91, 137 FAA Order 2150.3 Compliance and Enforcement FAA Order 8020.11 Aircraft Accident and Incident 14 CFR Parts 91, 43 FAA Order 8130.2D: Airworthiness Certification of Aircraft and Related Products HBGA 99-14A: Streamlined Administrative Action Process	Aircraft not airworthy
A.4.3.1	Manage ground operation	AC 60-22: Aeronautical Decision Making	Crew fatigue
A.4.3.1	Manage ground operation	Hazmat OSHA State rules Local fire departments Emergency medical technicians	Chemical spill

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) FSGA 97-03 AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Clogged pitot tube

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-14A: Streamlined Administrative Action Process	Clogged static port

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge 14 CFR Part 91 AFM FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Control system damage

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines	Damaged propeller

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBGA 99-14A: Streamlined Administrative Action Process	Dirty helmet visor

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) FSGA 97-03 AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBGA 99-14A: Streamlined Administrative Action Process	Dirty windscreen

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 AFM FAA Order 8700.1 (Chapter 118) FSGA 97-03 AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines	Failure to configure aircraft properly

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	14 CFR Parts 91, 137 FAA Order 2150.3 Compliance and Enforcement 14 CFR Parts 91, 43 AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge FAA Order 8020.11 Aircraft Accident and Incident AC 91-23A: Pilot's Weight and Balance Handbook HBGA 99-14A: Streamlined Administrative Action Process	Failure to do weight and balance

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBGA 99-14A: Streamlined Administrative Action Process	Failure to get notices to airmen

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBGA 99-14A: Streamlined Administrative Action Process	Failure to remove control lock

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Failure to set avionics correctly

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Flaps in wrong position

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Fuel selector in wrong position

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Improper aircraft configuration

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Improper seat-belt/harness

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Incorrect elevator/rudder trim setting

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	AC 20-42C: Hand Fire Extinguishers for Use in Aircraft FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) FSGA 97-03 AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Incorrect fuel selector valve

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Incorrect weight and balance

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Low engine oil

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Low fuel

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Low tire pressure

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	No helmet

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Structural damage

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.2	Perform preflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Water in fuel

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Chemical spill

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Damage aircraft during servicing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Failure to fuel aircraft

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Failure to repair broken items on aircraft

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Fuel spill

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Hopper cleaning/rinsing

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Improper record keeping

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.3	Perform aircraft ground services	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Improperly trained personnel

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.4	Perform dispersant handling	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Chemical contamination of crew

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.4	Perform dispersant handling	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Failure to follow MSDS instructions

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.4	Perform dispersant handling	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Inadequate safety handling precautions

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.5	Perform postflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Failure to install control lock

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.5	Perform postflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Failure to report Aircraft anomalies/damage

Node	Title	Regulations, Bulletins, Advisory Circulars, Airworthiness Directives	Hazard Description
A.4.3.5	Perform postflight activities	FAA Order 2150.3 Compliance and Enforcement HBGA 99-14A: Streamlined Administrative Action Process AC 60-22: Aeronautical Decision Making AC 61-23C: Pilot's Handbook of Aeronautical Knowledge AC 91-23A: Pilot's Weight and Balance Handbook 14 CFR Part 91 FAA Order 8700.1 (Chapter 118) AC 61-84B: Role of Preflight Preparation HBAW 97-17: FAA Flight Program Enforcement Guidelines HBAW 99-12A: Streamlined Administrative Action Process	Failure to write-up maintenance discrepancies