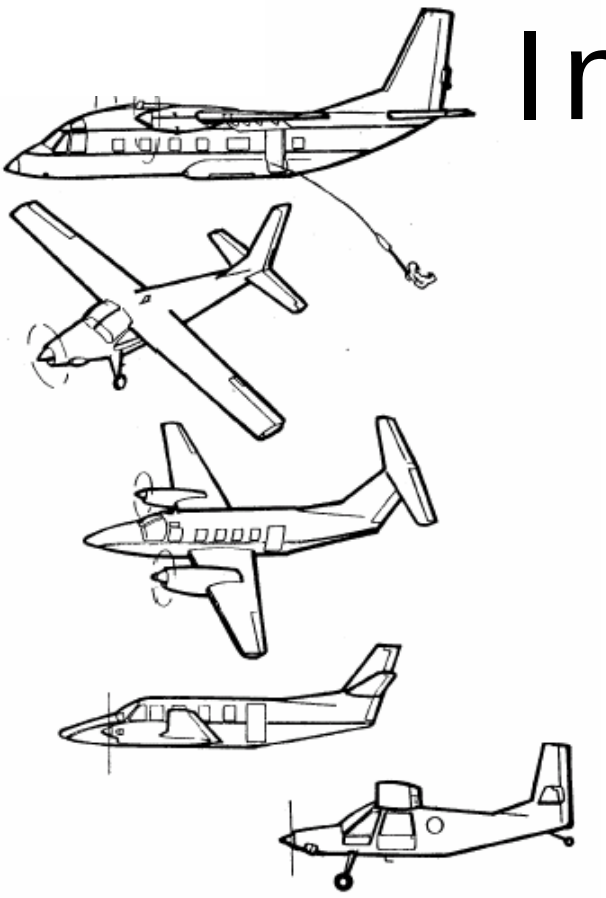
Smokejumper

Aircraft

Screening and

Evaluation

Board



Interagency Aircraft Evaluation Plan

8/8/2004

Chapter

1

Standard Smokejumper Aircraft Evaluation

1.1 Introduction

The United States Forest Service and the United States Department of the Interior Aviation Management Directorate (for the Bureau of Land Management) maintain a list of approved smokejumper aircraft. For an aircraft to be placed on the approved list, it must successfully demonstrate suitability for smokejumping. Completer information necessary to determine is obtained by conducting and aircraft evaluation.

A smokejumper aircraft evaluation may be called for when fire management planning has identified a need for an aircraft of a certain size, airspace or configuration and an aircraft meeting the identified requirements is no available on the approved list. Or, evaluation may be called for if a new aircraft model appears on the market which seems likely to provide favorable and needed cost competition to existing approved smokejumper aircraft. Approved aircraft are sometimes not available in sufficient quantities and again there may be a need to evaluate a new aircraft for smokejumping.

The steps leading to a smokejumper aircraft evaluation are as follows.

1. The aircraft sponsor(s) prepares a preliminary investigative report on the aircraft.
2. The Smokejumper Aircraft Screening and Evaluation Board (SASEB) review the sponsor's preliminary report. SASEB recommends acceptance or rejection of the sponsor's proposal.
3. Forest Service Aviation and Fire Management and the Department of the Interior Aviation Management Directorate (AMD) review, approve, or reject the SASEB recommendation regarding the proposed aircraft evaluation.
4. Pending the availability of required funding, an evaluation director is appointed and the evaluation is accomplished.

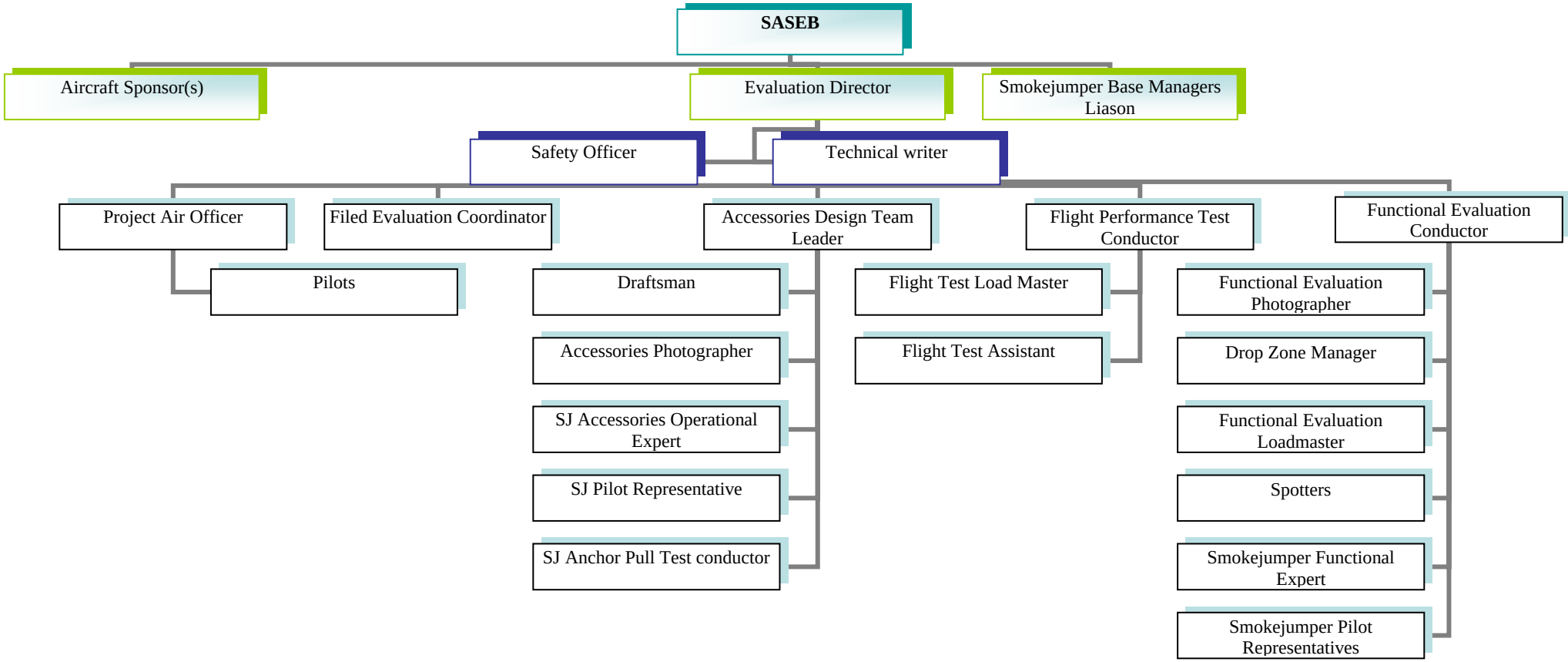
A smokejumper aircraft evaluation is structured to indemnify flight performance characteristics, accessories, and procedures needed to allow safe smokejumping form the aircraft. A complete evaluation consists of the following design work tests, evaluations and reports.

1. Pre-evaluation identification, design, fabrications and installation of accessories
2. Flight performance test
3. Functional evaluation
4. Development of preliminary operations guidelines
5. Design drawing, fabrication and installation of filed evaluation accessories
6. Field evaluation
7. Final accessories refinements, test and drawings
8. Final report

A complete smokejumper aircraft evaluation takes place over and extended period and portions of the evaluation may take place in different locations. However, all steps of the evaluation should take place with coordination and leadership provided by an evaluation director.

1.2 Organization

The following organization should be standard for smokejumper aircraft evaluations:



Chapter

2

Duties and Responsibilities

2.1 Duties and responsibilities

Standard duties and responsibilities of the various members of the evaluation team are outlined below. Additional duties and responsibilities specific to a particular evaluation will be covered in briefings as required.

2.2 Aircraft Sponsor(s)

The sponsor of the candidate smokejumper aircraft is responsible for preparing a report as described in part 2 of the evaluation plan. The sponsoring unite should provide this report to the chairman of the Smokejumper Aircraft Screening and Evaluation Board (SASEB). SASEBS annual meeting in generally in the fall. It is desirable if the preliminary report is submitted in advance of the meeting to allow distribution and review.

2.3 Smokejumper Aircraft Screening and Evaluation Board (SASEB)

SASEB is responsible for:

1. Receiving, reviewing and evaluating the reports received from the aircraft sponsor(s)
2. Recommending approval or rejection of the aircrafts evaluation proposals to the Director of Aviation and Fire Management, USDA Forest Service and the Director of the Aviation Management Directorate (AM D), Department of the Interior.
3. Forwarding the aircrafts sponsor report and other pertinent information to the appointed evaluation director, once an aircraft evaluation has been approved.
4. Reviewing the final report at the completion of the aircraft evaluation and recommending to the Directors of the USFS Fire and Aviation Management and AMD, Department of the Interior. Whether to accept or reject the aircraft for inclusion on the list of approved smokejumper aircraft.

2.4 Evaluation Director.

The Evaluation director is appointed by the management of the unit assigned responsibility for ht evaluation by the USFS WO A&FM or the AMD as appropriate.

The Evaluation Director has overall responsibility for conducting the evaluation, including planning, coordinating, scheduling, personnel selection, logistic and preparation of the required reports. The Evaluation Director is responsible for briefing all evaluation personnel on their duties and responsibilities. The Evaluation Director has final authority to modify, extend or terminate all testing.

2.5 Smokejumper Base Managers Liaison.

The Smokejumper Base Managers Liaison is appointed by the manager of the Smokejumper base(s) chosen to support the evaluation.

This position gives the Evaluation Director a contact point for coordinating evaluation support with the smokejumper organizations(s) that will provide facilities and support for the evaluations.

2.6 Safety Officer.

The Safety Officer is appointed by SASEB.

The Safety Officer is responsible to analyze and bring to the attention of the evaluation director and y circumstance or aspect of the evaluation that requires special attention to reduce potential risks and hazards.

2.7 Evaluation Technical Writer

The Evaluation Technical writer is selected by the Evaluation Director

This position assists the Evaluation Director in collecting and organizing notes, photos and data accumulated du4ring the course of the evaluation. The Evaluation Technical Writer may be assigned to assist in writing procedures and documenting conclusions during various steps in the evaluation.

2.8 Project Air Officer

The Project Air Officer (PAO) is selected by the management staff of the filed unit supporting the evaluation. The PAO should be and Agency pilot.

The PAO's responsibilities in the evaluation are to:

1. Assign qualified contract pilots or agency pilots to fly evaluation flights.
2. Verify the qualifications of agency and contract pilots assigned to the evaluation program and insure that they are properly equipped with protective clothing and equipment for the test flight.
3. Insure that pilots are briefed before the test program and as needed before each flight. Briefing topics must include air safety, air to air and air to ground communications, formation flying techniques and procedures.
4. Monitor the air safety of the test program through all evaluation flights. The PAO has the authority to stop any test flight if specific or immediate safety concerns arise.

2.9 Pilots

Pilots are responsible for flying their aircraft in accordance with the established agency policies and the evaluation plan. Duties include:

1. Attending briefings and debriefings.
2. Complying with all standard procedures and requirements for designated flight and complying with any special test requirements.
3. Aircraft communications.
4. Verifying weight and balance data provided by the loadmaster. Pilots have final authority in flight safety matters aboard the aircraft.

2.10 Accessories Design Team Leader

The process for selecting the Accessories Design Team Leader may vary depending on the circumstances of the evaluation. However, the selection will be coordinated with the Evaluation Director. It is desirable if the design team leader is a mechanical or aeronautical engineer, however a consultant may be used to provide needed engineering expertise.

The responsibilities of the Accessories Design Team Leader begin before the "functional evaluation" takes place and extend beyond the "field evaluation." Specific duties and responsibilities are enumerated below:

1. Before the "functional evaluation," the Accessories Design Team Leader insures that adequate smokejumping accessories are constructed and installed in the aircraft which will permit safe accomplishment of the air drop portions of the evaluation.

2. During the “functional evaluation” the Accessories Design Team Leader works with the Functional Evaluation Conductor to design accessories compatible with operational procedures identified during the “functional evaluation.”
3. Before the “field evaluation,” the Accessories Design Team Leader insures that preliminary drawings for accessories determined necessary during the “functional evaluation” have been prepared.
4. After the “field evaluation,” the accessories design Team Leaden insures that designs are modified and finalized as appropriate.
5. The Accessories Design Team Leader is responsible for providing final drawings of all smokejumper accessories for the aircraft.
6. Through all stages of this work, the Accessories Design Team Leader insures that the design and configuration of accessories conform to established technical and operational standards, and that designs are professionally engineered so that they are likely to pass subsequent strength tests when required.

2.11 Accessories Draftsman

The Accessories Design Team Leader arranges for this position to be filled.

Draftsman duties include:

1. The Accessories Draftsman assists the Accessories Design Team Leader by insuring that adequate measurements and photographs of the aircraft structure are obtained to permit preliminary and final accessories drawings.
2. As assigned, the Accessories Draftsman is responsible for producing the preliminary and final drawings of the required smokejumping accessories.

2. 12 Accessories Photographer

The Accessories Design Team Leader arranges for this position to be filled.

The Accessories Photographer is responsible for providing all photographs of aircraft configuration and structure as requested by the Accessories Design Team Leader and the Accessories Draftsman.

2.13 Smokejumper Accessories Operational Expert

The Accessories Design Team Leader arranges for this position to be filled.

This position provides the Accessories Design Team Leader with information regarding operational compatibility of aircraft accessories with standard smokejumper procedures.

2.14 Smokejumper Pilot Representative/Accessories

The Accessories Design Team Leader arranges for this position to be filled by the PAO.

This pilot provides the Accessories Design Team Leader information regarding the compatibility of aircraft accessories with flight safety.

2.15 Static-Line Anchor Pull Test Conductor

The Accessories Design Team Leader arranges for this position to be filled.

This position provides the Accessories Design Team Leader information regarding the compatibility of aircraft accessories with flight safety. when required. This person has authority and responsibility to terminate pull tests for concerns regarding personal safety or possible damage to the aircraft. It is desirable for the Pull Test Conductor to be the designer of the anchor system.

2.16 Flight Performance Test Conductor

The Evaluation Director arranges for this position to be filled.

The Flight Performance Test Conductor has overall responsibility for organizing and conducting the flight performance test program. These duties include:

1. Liaison with aircraft manufacturer regarding performance and technical data.
2. Providing technical advice on aircraft operation and performance. 3. Preparing load schedule and calculating weight and balance data for the performance test.
3. Conducting the prescribed performance test flights and recording data.
4. Providing the Functional Evaluation Conductor with *information* regarding recommended drop speeds and flap settings after the performance test flight, and before the functional evaluation.

The Flight Performance Test Conductor has authority to terminate the prescribed flight performance test flight before completion for reasons

2.17 Flight Performance Test Assistant(s)

The Flight Performance Test Conductor will arrange for these positions to be filled as needed.

These individuals assist the Flight Performance Test Conductor in reading and recording data during the performance test flight.

2.18 Flight Performance Test Loadmaster

Arrangements to fill this position are made by the Flight Performance Test Conductor with the Smokejumper Base Manager’s liaison.

As instructed by the Flight Performance Test Conductor, the Loadmaster prepares ballast load bundles, positions them on the test aircraft, and restrains the loads using standard procedures.

2.19 Functional Evaluation Conductor

The Evaluation Director arranges for this position to be filled.

This position is responsible for conducting the work sessions and evaluation flights prescribed in the functional evaluation plan. Specific duties include:

1. Determining that it is safe to conduct airdrops using standard smokejumper cargo and personnel parachutes before conducting any airdrops of cargo or smokejumpers.
2. Obtaining information from the Flight Performance Test Conductor regarding airspeeds and flap settings for functional evaluation flights. Also, obtaining information regarding weight and balance of functional evaluation loads.
3. When appropriate, coordinating information with the Accessories Design Team Leader regarding refinement of accessories or design of new accessories.
4. Briefing evaluation jumpers, cargo droppers, spotter, pilots, drop zone personnel, loadmaster, photographers, and other personnel at the beginning of the evaluation and as needed before each flight.
5. Insuring that all FAA notifications required by FAR Part 105 have been obtained before air drops.
6. Evaluating weather conditions that may postpone evaluation flights.
7. Insuring that required procedures, schedules, and communications are followed.
8. Determining, with the help of other evaluation team personnel, the proper procedures for spotting, exiting the aircraft, cargo dropping, and emergency exiting.
9. Conducting debriefing and critique sessions after each test flight to resolve problems and questions before moving to the next step in the evaluation.
10. Maintaining a list of unresolved questions that need answering before the evaluation is complete. Conducting a meeting of the evaluation team to resolve these questions before the end of the functional evaluation.
11. Insuring that all required documentation is complete.

The Functional Evaluation Conductor has authority to immediately stop or postpone any phase of the evaluation for safety reasons.

2.20 Functional Evaluation Photographer

Arrangements to fill this position are made by the *Functional* Evaluation Conductor. Responsibilities include:

1. Providing still and motion picture coverage called for in the evaluation plan.
2. Advising the Evaluation Conductor of support requirements, such as photo aircraft needed to accomplish the photographic mission.
3. Having film processed to meet called for schedules and dead-lines.
4. Providing projectors called for by the evaluation plan.
5. Attending briefings of photo and evaluation aircraft pilots; advising participants of special photo needs and considerations.
6. Placing tape numerals forward of jump door for flight number designations.
7. Advising Evaluation Conductor of special problems in obtaining good photographic coverage once test begins.

2.21 Drop Zone Manager

Arrangements to fill this position are made by the Functional Evaluation Conductor with the Smokejumper Base Managers Liaison.

Responsibilities include:

1. Procuring and preparing standard drop zone equipment, marker panels, radio, retrieval equipment, and equipment needed for the drop zone.
2. Procuring standard EMT kit and litter for the DZ. Arranging for DZ EMT, and for evacuation of injured.
3. Monitoring drop aircraft radio frequency during all drops.
4. Providing transportation to and from the DZ for evaluation personnel and observers.
5. Retrieving and returning cargo to the loadmaster following test flights.
6. As needed, supervising DZ personnel assigned to retrieve cargo. Providing tree climbing equipment if needed.

2.22 Functional Evaluation Loadmaster

Arrangements for filling this position are made by the Functional Evaluation Conductor with the Smokejumper Base Managers Liaison.

Loadmaster responsibilities include:

1. Preparing all cargo to be placed on the aircraft for each flight.
2. Weighing, loading, and restraining all cargo for each flight in accordance with standard procedures and aircraft restrictions.
3. As necessary, calculating weight and balance of each load for review by the pilot.
4. As needed, supervising persons assigned to assist in rigging cargo bundles and loading aircraft.
5. Insuring compliance with other standard policies and procedures related to loadmaster responsibilities not covered by test plan.

2.23 Spotter(s)

Arrangements for filling this position are made by the Functional Evaluation Conductor with the Smokejumper Base Managers Liaison.

Responsibilities of the spotter include:

1. Performing pre-jump safety check of all jumpers in accordance with FSH 5709.14.
2. Inspecting the drop aircraft for proper loading and correct static-line cable installation.
3. Filling out drop sheets for each flight, noting any problems, and providing copies of drop manifests to the Evaluation Conductor at the end of the tests.
4. Attending briefings for each evaluation flight.
5. Assisting Loadmaster with proper loading of cargo and jumpers.
6. Dropping cargo and jumpers according to load manifests in the evaluation work book, and instructions from the Functional Evaluation Conductor.
7. Complying with other standard policies and procedures related to "spotting" that are not covered by evaluation plan. The spotter has the authority to immediately stop or postpone jumping or cargo dropping for reasons related to the safety of the airdrop.

2.24 Jumpers

Arrangements for required numbers of jumpers are made by the Functional Evaluation Conductor with the Smokejumper Base Managers Liaison.

Responsibilities of the jumpers include:

1. Following procedures determined and described by the Functional Evaluation Conductor for each jump. Following standard smokejumper safety procedures, or procedures specified under "Special Safety Concerns," of the evaluation workbook.
2. Pointing out operational or safety problems with procedures or equipment during the test.
3. As requested, attending briefings,' debriefings, and photo review sessions. (Jumpers shall be experienced personnel. Also, as possible, the same jumpers shall be used to provide comparative feedback.)
4. Complying with standard policies and procedures related to jumping that are not covered by test plan.

2.25 Smoke jumper Operational Exerts

Arrangements to fill these positions are made by the Functional Evaluation Conductor.

The Smokejumper Operational Expert's responsibility is to provide the Functional Evaluation Conductor with input regarding optimum smokejumper procedures appropriate in the evaluation aircraft. Also, assisting in documenting the evaluation as required by the evaluation plan.

2.26 Smokejumper Pilot Representative/Functional Evaluation

Arrangements to fill these positions are made by the Functional Evaluation Conductor with the PAO.

The Smokejumper Pilot Representative is responsible for providing the Functional Evaluation Conductor information on compatibility of smokejumper procedures developed during the evaluation with flight safety.

2.28 Field Evaluation Conductor

The Smoke jumper Base Manager who operates an evaluation aircraft during its first season of operational use is the Field Evaluation Conductor.

The Field Evaluation Conductor is responsible for operation of the evaluation aircraft during its first season of operational smokejumper use. The Evaluation Director will provide the Field Evaluation Conductor with written preliminary Operational Guidelines. The Field Evaluation Conductor is responsible to refine or modify those guidelines appropriately as he gains experience operating the aircraft. At the conclusion of the field evaluation, the Field Evaluation Conductor shall provide the Evaluation Director with a report as outlined in the evaluation plan.

2.29 Air Operations and Smokejumper Safety

Procedures, equipment, and qualifications of smokejumpers, cargo droppers, spotters, pilots, and other personnel participating in the flight and airdrop portions of the evaluation will conform to requirements of FSM 5700 and the "National Smokejumpers Training Guide." Where exceptions to standard procedures are required, additional safety procedures will be covered in detail during evaluation briefings and will be listed in the "special safety considerations" section of the evaluation workbook.

Responsibility for flight and airdrop safety rests with the Evaluation Director and is also an inherent responsibility of all members of the evaluation organization. Proper safety procedures and communication's procedures are inherent in the structure of the evaluation plan.

Chapter

3

Normal Smokejumper Aircraft Evaluation Time Frames

3.1 NORMAL SMOKEJUMPER AIRCRAFT EVALUATION TIME FRAMES

While time requirements may vary with specific candidate aircraft, the complete process of evaluating and approving an aircraft for smokejumping can generally be expected to extend 2 years or more. The following are normal time requirements:

Aircraft Sponsors Preliminary Report: This report must be prepared and distributed to SASEB members before the annual SASEB meeting. SASEB normally meets in the fall.

SASEB Review of Aircraft Sponsors Preliminary Report: SASEB should approve or reject a proposed evaluation at their meeting.

Forest Service A&FM and Aviation Management Directorate (AMD) Review, Approval, or Rejection, of a SASEB Recommendation Regarding a Proposed Aircraft Evaluation: 3 months. However, funding restrictions may delay the evaluation 1 **or** more years.

Preparation of Evaluation Workbook and Evaluation Planning: 1 month

Preliminary Design, Fabrication, and Installation of Accessories Prior to the Performance Test and, *Functional* Evaluation: 3 months

Performance Test and Functional Evaluation. 5 days

Draft Preliminary Operational Guidelines and Design, Draw, Fabricate, and Install Accessories: 4 months

Field Evaluation: 4 months

Final Accessories Drawings, Static Line Anchor Pull Taut, and Final Report: 6 months

SASEB, Forest Service A&FM, and AMD Review of Final Report. Final Approval of the Candidate Aircraft as an Approved Smokejumper Aircraft: Depends on date final report is prepared.

Chapter

4

PART II - AIRCRAFT SPONSORS PRELIMINARY IVESTIGATION

4.1 INTRODUCTION

A smokejumper or aviation organization interested in sponsoring a specific aircraft is responsible to conduct an investigation and prepare a report structured according to the following outline. This report should be forwarded to the Chairman of the Smokejumpers Aircraft Selection and Evaluation Group (SASEB). If possible, this report should be submitted well in advance of the fall SASEB meeting. At such time as Agency management has approved proceeding with an evaluation, the SASEB Chairman should forward the sponsoring units report to the appointed Evaluation Director.

4.2 OUTLINE

4.2.1 Administrative Considerations:

a. The need for the aircraft. Justify why this particular aircraft should be evaluated.
b. Number of aircraft available for smokejumper-paracargo use
c. Versatility of the aircraft; multi-use capabilities
d. Payload - smokejumper, paracargo
e. Range - cruise speed, hours flying with operation loads
f. Total aircraft purchase cost
g. Contract rate
    1) Rate per hour
    2) Daily availability
    3) Other costs
h. Date of manufacture
i. Maintenance programs and location of maintenance and repair stations
j. Performance envelope
k. Landing field requirements
    1. Modification requirements
m. Modification costs
n. Certification

4.2.3 Flight Performance Data:

a. Second segment climb gradient at max gross wt., 81^0 F, 5000 feet pressure alt.
b. Any fuel and gear emergency procedure problems with single pilot.
c. Stall and recovery characteristics.
d. Turning capability into dead engine at 1.3VSO get-away.
e. Horizontal stabilizer position relative to Sump
f. Center of gravity related to payload compartment of two jumpers and two spotters at door should be considered).
g. Maneuverability at drop speeds.
h. Minimum stable jumper drop speed (not to exceed 100 knots)
i. Flight and environment characteristics with door removed. FAA certified to fly with door removed.
j. Engine compatibility to wide range of power and negative thrust.
k. Minimum stable *cargo* drop speed.
    1. Trim change with speed and power variations.
m. Maintenance requirements between required inspections.
n. Straightforward and easy to manage systems.
o. Gear retraction time.
p. Normal cruise speed.
q. Meets minimum one engine out (critical engine) service ceiling policy (9000 feet density altitude at -3^o C with a capability of 50 feet per minute rate of climb.

4. 3. Smokejumper Performance Data:

Based on professional opinion of the sponsor, a statement will be made on the adequacy of the aircraft for the smokejumper mission. Some of the items considered mandatory for this use are:

a Minimum jumper exit door size must be at least 25 inches wide and at least 36 inches high
b. Acceptable pilot-spotter visibility and communications for intended missions
c. Existing, or potential for, structurally and functionally adequate cargo and smokejumper static-line anchor installation
d. Existing, or potential for, emergency or cargo dropper attach point
e. Jumper exit door opening flush with floor
f. Has existing, or potential for, the following installations:
    1) Door safety strap
    2) Safety handrails
    3) Cargo tie down facilities
g. All sharp corners and projections near the door and step, along the fuselage aft of the jump door, and under the fuselage that might snag parachutes or cargo can be removed or shielded
h. Document information on any prior use as a para-delivery platform by any other organization.

i. Anticipated modifications required to make the aircraft acceptable as a para-delivery platform (doors, steps, anchor cables)
j. Provisions for restraint of smokejumpers

Chapter

5

PART III - IDENTIFICATION AND DESIGN OF ACCESSORIES

5.1 INTRODUCTION

The goal of the accessories design team is to identify, design, and when required, test accessories needed to configure an aircraft for smokejumping. The final design of these accessories must meet established technical and operational requirements. Within practical limits, these accessories must meet the needs identified during the flight performance test, functional evaluation, and field evaluation.

The process of identifying and designing appropriate accessories for a candidate smokejumper aircraft must begin several months before the flight performance test and functional evaluation and nay extend beyond the field evaluation.

5.1.2 DESIGN TEAM WORK ASSIGNMENTS

- **Work to be accomplished prior to the Flight Performance Test and Functional Evaluation.**

Before the flight test and functional evaluation, the accessories design team is responsible to insure that the aircraft is equipped with a minimum of accessories needed to conduct these evaluations. Specifically, minimum accessories may include the following:

1. Provisions for removing or opening a suitable jumper exit door
2. Provisions, if needed, to allow flight with jumper exit door removed, i.e. a spoiler, 337, or STC
3. Door safety straps
4. Acceptable pilot-spotter communication system
5. Interim cargo and personnel parachute static-line anchors suitable for both FS-12 and ram-air parachutes for use during evaluation air drops, including FAA 337, if required
6. Cargo tie down facilities
7. Provision to tape or shield sharp corners and projections near the jump door and along the fuselage aft of the jump door, and under the fuselage, that might snag or cut parachutes or static lines
8. Jump step
9. Hand rails
10. Spotters emergency knife

The accessories installed in a candidate aircraft before the flight performance test and function evaluations do not necessarily need to have the quality or design anticipated for final design. However, these accessories must allow safe conduct of the flight and drop test portions of the evaluation. Further, the correct design and configuration of some accessories will not be apparent until after the functional evaluation. Therefore, design and installation of some accessories might be best deferred until after the functional evaluation. In some cases, it will be unwise to attempt final design of handrails, static-line anchors, door platforms, jump steps, and final location of spotter communication panel until after the functional evaluation. The Accessories Design Team Leader must insure coordination with the Functional Evaluation Conductor on the lack, or limitations, of some accessories. The Functional Evaluation Director can then include specific instructions to personnel in briefings on safety procedures for the evaluation including the limitations that will be present during the functional evaluation.

Note: With regard to the minimum strength of a primary smokejumper staticline anchor adequate to conduct an evaluation, a professional engineering analysis indicating a capability to withstand a 1000-pound deployment force will be required. The 2000-pound STC requirement for operational use of these anchor systems takes into account the strength required to take a smokejumper intow. A 1000-pound anchor will be adequately strong to withstand forces which may be incurred in the event of a misroute, and normal deployment forces. The probability of an intow situation occurring during an evaluation is low. Also, highly qualified evaluation jumpers can be briefed that an intow force will cause the anchor to fail and that reserve deployment procedures should be used if this situation should occur.

5.1.3 Accessories Design Work During the Functional Evaluation:

As the functional evaluation determines load configurations and procedures appropriate to the aircraft, the Accessories Design Team Leader must work closely with the Functional Evaluation Conductor to identify optimum accessories configuration and location. Adequate photos and measurements must be taken of aircraft structure to allow design of accessories.

5.1.4 Accessories Design Work Prior to Field Evaluation.

Before a scheduled field evaluation, the Accessories Design Team Leader is responsible, as assigned, to produce working drawings of the needed accessories identified during the functional evaluation. These drawings must be prepared enough in advance of the field evaluation to allow the Aircraft Contractor time to construct and install the accessories.

Static-line and tether anchors designed for the field evaluation must be configured to meet established strength requirements for these installations. Specifically, an engineering analysis of the anchor systems, considering aircraft structure, anchor materials, anchor configurations, and geometry of potential forces must indicate that the anchor system will likely meet established strength requirements. These anchor systems may be installed and used during the field evaluation with an FAA 337.

5.1.6 Accessories Design Work after the Field Evaluation.

After the field evaluation, the Accessories Design Team Leader must review input from the Field Evaluation Conductor. Refinement and modification of accessories is then accomplished, with concurrence of the Evaluation Director, and final drawings are produced.

Before the next field season, the accessories design team is responsible, as assigned, to conduct pull tests required for ST. of the primary smokejumper anchor system.

5.2 SUGGESTED BRIEFING TOPICS

Before design work, and during the course of design work sessions, briefings of personnel will be required. The following topics are suggested:

5.2.1 Briefing Topics/Accessories Design Team Leader

1. Specific minimum accessories that need to be installed in the evaluation aircraft before the flight performance test and functional evaluation.
2. Documentation and photos of accessories design work required
3. Expected coordination with Flight Performance Test Conductor and Functional Evaluation Conductor
4. Critical timetables for accomplishing accessories design work

5.2.2 Briefing Topics/Accessories Draftsman

1. Critical timetables for completing drawings
2. Attendance requirements at design work sessions conducted at the aircraft

5.2.3 Briefing Topics/Accessories Photographer

1. Camera equipment required
2. Objectives of photography and photos required
3. Dates and times for photo work
4. Prints required

5.2.4 Briefing Topic/Smokejumper Accessories Operational Expert

1. Attendance requirements at design work sessions conducted at the aircraft
2. Coordination expected with Functional Evaluation Conductor

5.2.5 Briefing Topics/Smokejumper Pilot Representative (Accessories)

1. Attendance requirements at design work sessions
2. Expected coordination with Performance Flight Test Conductor and Functional Evaluation Conductor

5.2.6 Briefing Topics/Static-Line Anchor Pull Test Conductor

1. Standard pull test procedures
2. Scheduling and logistics
3. Documentation and coordination with FAA to obtain required STC's

Chapter

6

PART IV - FLIGHT PERFORMANCE TEST

6.1 INTRODUCTION

The flight performance test is structured to simulate the unique flight profiles involved in dropping smokejumpers. Often the airplane must be flown into a canyon, drop down to 1,300 feet above the ground, slow down to 90 to 100 knots indicated air speed, drop two jumpers, climb and accelerate while turning to avoid terrain and go back and repeat with two more jumpers. Cargo dropping patterns involve similar maneuvers in rough, steep terrain at an altitude of 200 to 300 feet AGL.

An engine failure or stall caused by wind gradient or vertical air movement may occur anytime during these maneuvers. The behavior of the airplane in stalls, especially during turns, and with one engine out, is very important in evaluating whether or not an aircraft is suitable for smokejumper missions.

The stall phase of the evaluation is intended to reveal any vicious stall characteristics of the evaluation aircraft. The power-on stalls show normal drop-run characteristics. The power-off stalls show whether the aircraft may have vicious habits after a power failure.

The engine response tests are intended to show how well the airplane can accelerate from drop speed to an efficient climb speed. The trim response test is intended to show whether the pilot can change the trim fast enough to keep up with the changes of speed, power, and configuration that occur when entering and exiting a drop run.

The single engine performance phase of the test is intended to show how controllable the airplane is at drop speed should an engine fail. The airplane should be able to make 30^0 banked turns right or left at 90 knots with the critical engine cut.

The drop run characteristics test is intended to show how steeply the test aircraft can descend into canyons and still maintain control and resume level flight.

The emergency procedure evaluation is intended to demonstrate that all emergency procedures can be satisfactorily performed in single pilot operation.

The flight performance test should be accomplished during one flight and should take about 1 hour. Crew for this flight should be the pilot, Flight Performance Test Conductor, and sufficient observers to read, Gall out, record, and cross-check data. Data work sheets will be provided in the evaluation workbook.

6.2 FLIGHT PERFORMANCE TEST PROCEDURES

Aircraft shall be ballasted to full gross weight with CG in aft most location. Provision must be made for adjusting CG location in flight and for rapid dumping or moving aft ballast forward. Weight and balance are to be computed for the takeoff conditions.

Record:

1. Gross weight
2. CG location (station)
3. Fuel quantity

Following takeoff, climb to at least 5,000 feet AGL. All evaluation maneuvers should be flown at least 5,000 AGL. For all stalls, elevator trim should be established about 20 KIAS above anticipated stall speed.

6.3 Stall Series Power Off

With wings level, reduce engine power to idle power. Maintain altitude and allow airspeed to bleed off. Increase angle-of-attack until onset of stall. Record airspeed. Continue increasing angle of attack until a full break occurs, or rate of descent is stabilized. Record airspeed, rate of descent. Apply power, drop nose, and attempt minimum loss of altitude for recovery. Record fuel quantity. Record any prominent characteristics of stall.

Return to base altitude. Reduce power to idle and make a constant altitude 30°-banked turn. Record stall onset speed, speed at full stall, altitude loss in recovery, fuel quantity, and prominent stall characteristics. Return to base altitude.

Repeat procedure with a bank in the opposite direction.

Repeat the series with gear and flaps extended.

6.4 Stall Series Power On

At base altitude, slow the aircraft, drop the gear and set flaps to take-off configuration. At lift-off speed, apply climbing power and start a shallow, banked (15°) turn in either direction. Pull the nose up steeply. Record speed at stall onset. When stall breaks, record speed, relax back pressure, use manufacturer's recommended procedure to stop rotation and level wings. Record altitude loss and fuel quantity. Repeat in both directions with 20°-bank. Record any prominent characteristics of stall and recovery.

6.5 Stall Under Drop Conditions

Set up level stabilized flight at anticipated drop speed, for example,

1.3V stall or 100 KCAS, whichever is smaller. Record altitude and power settings. Establish a 30°-banked turn and allow airspeed to drop off. If necessary, start a climbing turn to initiate a stall. Note speed of stall onset, vertical speed, and altitude. When stall indications are sufficiently noticeable, apply full power, relax back pressure, and establish climb airspeed.

- Record final stall speed established and altitude when recovery started.
- Record speed and altitude when climb speed is established and record stabilized rate of climb.

6.6 Single Engine Characteristics

Following normal procedures, stop the critical engine and feather its propeller. Maintaining a constant base altitude, gradually reduce airspeed and engine power while making gradual turns up to 30°-banks in each direction. As airspeed decreases, record any change in controllability. Do not allow airspeed to drop below VMC.

At minimum airspeed, increase power gradually to full power on the good engine. Continue climbing turns up to 30°-bank to evaluate the general controllability on one engine.

With the aircraft in take-off configuration and VYSE established on the base altitude with full power, record the control with the left engine out and the ability to establish a single engine climb recovery.

Record

1. Altitude
2. Airspeed,
3. Rate of climb.

6.7 Drop Run Simulation

Stabilize the aircraft in the anticipated configuration and speed for a smokejumper run. Keeping wings level, use the rudder for making skidding turns to accomplish 5°-heading changes. Record any difficulty encountered.

To determine descent rates, with the aircraft in normal drop configuration, reduce power to minimum acceptable power setting. Maintain established drop speed by pitch change.

When rate of descent is stable, record altitude, airspeed, and vertical speed.

Continue with each additional drag device available, for example, the gear. When vertical speed and drop airspeed are stable, record the same data for each configuration.

When maximum rate of descent is established, select an altitude to start recovery. On passing this altitude, add power, clear) up the aircraft and establish normal climb speed. Record airspeed and altitude at start of recovery. Record minimum altitude encountered. Record vertical speed and altitude when climb speed is established.

6.8 Engine Response

Completing the previous checks, there should have been several power changes to show basic engine response. Record any difficulty encountered.

Next, time the acceleration response on throttle bursts. With power at minimum acceptable power setting, record altitude, airspeed and temperature. With stop watch or sweep second hand note time as throttle is advanced; make throttle movement smooth and rapid to full power position. Record the time engine has taken to get to full power. Record the time for acceleration for each engine.

Record any adverse problems with throttle bursts.

6.9 Trim Response

Through all the power, speed, and configuration changes, effectiveness of the trim should have been noted. Record acceptability of trim response.

6.10 Emergency Procedures

Simulate the following emergency procedures using the handbook check lists:

1. Gear operation
2. Fuel emergencies
3. Others that may be listed

The purpose of this check is to assure that a single pilot can perform all necessary emergency procedures.

Note: In the event the aircraft being evaluated is a single engine aircraft, references to single engine performance tests appropriate to twin engine aircraft do not apply. Engine-Out characteristics will apply as follows:

6.11 Single Engine Aircraft Engine-out Characteristics

The aircraft should be flown at least 8,006 feet AGL for this test. The aircraft must demonstrate a satisfactory glide ratio. The glide will be done with the engine shut off. The glide speed will be 100 knots CAS or 1.3V stall, whichever is lowest. The glide speed and elapsed time for 1000-feet descent will be recorded.

In addition, it will be established that the aircraft is sufficiently controllable at glide speed (1.3V stall or 100 knots CAS, whichever is lowest) so that any maneuvers necessary to make an emergency landing can be performed.

6.12 AIR SAFETY

The following air safety standards will be adhered to during the flight performance test:

1. Weather: The flight performance test will be performed under basic VFR conditions defined by the FAA. At the start of the test, the Flight Performance Test Conductor will check weather and will determine if visibility, wind, turbulence, and other weather factors are acceptable for the test.
2. The flight test will be performed at an adequate altitude to recover from all flight maneuvers.
3. The Project Air Officer will coordinate air traffic control procedures with local authorities, and FAA traffic control personnel.
4. Aircraft loading, weight, and balance: Computations will be made before the test flight; the Flight. Performance Test Conductor and Evaluation Pilot in command of the, test flight will review each computation.
5. Briefings: Pilot and support personnel will be briefed in total mission intentions, test procedures, air-to-ground communications, and emergency procedures.
6. Inspections: Aircraft will be inspected by the PAO and/or Maintenance Specialist to assure that all airworthiness, S.T.C., 337, or additional special requirements are in order. Aviation personnel will comply with qualification standards.
7. Air safety will require maximum awareness of each person involved in the flight performance test.

6.13 COMMUNICATIONS

During the flight performance test, the evaluation aircraft will maintain air-to-ground communications with local dispatch.

6.14 DOCUMENTATION REQUIREMENTS

At the conclusion of the flight performance test, the Conductor will complete the worksheets for the flight performance evaluation, and prepare written comments and conclusions on the aircraft's performance throughout flight maneuvers. Any adverse performance characteristic will be thoroughly discussed in the comments.

6.15 SUGGESTED BRIEFING TOPICS

Briefings of personnel will be conducted. The following topics are suggested before the flight performance test flight.

6.16 Briefing Topics/Flight Performance Test Conductor

1. Standard evaluation procedures
2. Specific safety considerations regarding the performance of the evaluation aircraft, including emergency procedures
3. Required coordination with the Functional Evaluation Conductor on recommended airspeeds and flap settings for air drop, and weight and balance calculation for functional evaluation loads
4. Required documentation of flight performance test results

6.17 Briefing Topics/Flight Performance Test Assistant

1. Standard procedures
2. Specific instruction regarding which aircraft instrument readings must be monitored and recorded

6.18 Briefing Topics/Flight Performance Loadmaster

1. Specific load and load location to achieve required weight and balance configuration

6.19 Briefing Topics/Evaluation Aircraft Pilot

1. Standard procedures for the flight performance test
2. Emergency procedures
3. Communications

Chapter

7

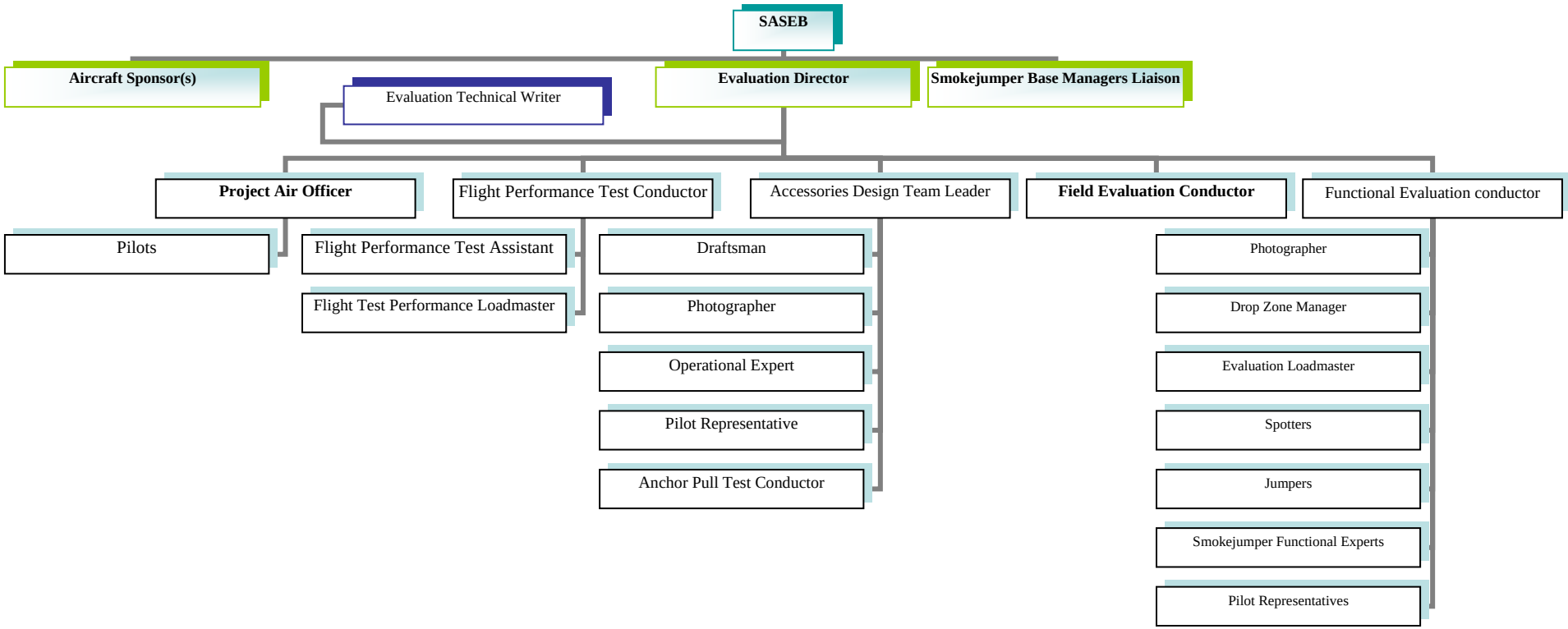
Part V – Functional Evaluation

7.1 Introduction

The objectives of the functional evaluation are to:

1. Identify the suitability of the aircraft for smokejumping and cargo dropping, using both the Forest Service parachute and Ram-air smokejumper parachute systems.
2. Identify practical smokejumper load configurations compatible with cabin size, weight and balance considerations and various potential operations fuel loads.
3. Evaluate existing accessories, and identify new accessories needed to configuration the aircraft for optimum efficiency and safety during smokejumping missions.
4. Identify the best, safest and most efficient smokejumping procedures for spotting, smokejumper exit and cargo dropping and the best emergency exit procedures.

7.2 Organization



7.3 functional Evaluation Standard Procedures

The following standard series of evaluation work sessions and flight tests are structured to satisfy the objectives of the functional evaluation and to document the conclusions, load configurations, and smokejumper procedures identified by the evaluation team. The flights and work sessions will be conducted in the order listed. Detailed briefings and debriefings will be conducted by the Functional Evaluation Conductor before and after each flight or work session.

7.3.1 Work Session A – Initial Briefing

Work session A is a briefing of the members of the functional evaluation organization and evaluation pilots to insure that the objectives, structure, schedules and logistics of the evaluation are understood. Duties, responsibilities and pertinent topics regarding safety and communications will be discussed.

7.3.2 Work Session B – Initial Briefing

Work session B will be conducted at the aircraft. Standard smokejumper cargo and personnel static lines will be attached to the anchor and ext4ended out the jumper door to full extended length as they would trail in flight. The static lines will be moved throughout the extreme range they potentially may travel in trail-up or over the fuselage. and down under the fuselage. Potential contact with antennas, beacons or the horizontal stabilizer will be evaluated. Any adverse indication of potential for static lines or D Bags to entangle in the aircraft protrusions must be corrected before static line trial flight tests or airdrops air accomplished.

7.3.3 Flight 1 – Static Line Trail

Flight 1 will be conducted with the aircraft fueled and loaded to maximum gross weight and maximum forward CG to produce maximum tail low flight attitude. Drop speed will be 5 knots CAS less than identified airdrop speed, though not less than V Stall speed. Flap settings will be none or the minimum that may be used for airdrop of cargo and smokejumpers.
High speed filming of static lines trailing from the evaluation aircraft will be taken from a chase plane flying in proximity to the evaluation aircraft.
The static line trail test will be conducted as follows.
A single cargo static line will be attached to the static line anchor and trailed, and then an additional cargo static line will be trailed. These static lines will be allowed to trail at full extension for approximately 15 seconds and then will be retrieved. The procedures will be repeated using personnel static lines and D-bags, gradually working first one, then another, to full extension. Finally, the number of D-bags corresponding to an emergency exit of a full load of jumpers will be trailed to determine potential hazards in an emergency mass exit, and any adverse effects on aircraft performance. If trailing more than 4 D-bags is required, two spotters should be assigned to the flight to pull in the D-bags. If more than one static line anchor location may be used for cargo, jumpers, or

emergency exit, trail tests will be accomplished from all anticipated attachment points.

In advance of trailing the static lines, a system of communications and signaling must be worked out between the spotter in the evaluation aircraft and the photographer in the chase plane regarding when to start the camera to insure good film coverage.

7.3.4 Work Session C - Review of High Speed Film of Static Line Trail

Prior to proceeding to the actual air drop phases of the evaluation, the

high speed films of the static-line trail test flight will be reviewed by the Evaluation Director, functional Evaluation Conductor, and other appropriate members of the evaluation team. The position and movement of

the trailing static lines and D-bags will be evaluated and probable proximity of deploying parachute canopies to the horizontal stabilizer, or other aircraft protuberances will be evaluated. If there is a possibility that a canopy may catch or hang up, corrective action will be taken before the evaluation continues. If the problem is of a serious nature, such as a possibility of a parachute canopy deploying over the tops of a horizontal stabilizer, the evaluation may be cancelled.

Note: If the aircraft is of such a configuration that potential static-line D-bag trail characteristics and potential canopy deployment routing precludes any potential for adverse contact or hangup, Flight 1 may be combined with “Cargo and torso dummy drops,” Flight 2. This action precludes the requirement to review film of the static-line trail Flight-1 before proceeding with actual air drops. This situation may occur, for example, if the aircraft has a clean fuselage configuration, high tail, and previous history of use as a paratrooper aircraft. However, simply because parachute jumps have been made from an aircraft does not mean special problems might not exist with smokejumper equipment. Smokejumper static-line length, parachute deployment system, and static-line anchor location may be different than those previously used in the aircraft. The decision to combine Flight 1 and Flight 2 must be made by concurrence of the *Functional* Evaluation Conductor, Evaluation Director, and other appropriate members of the evaluation team.

7.3.5 Flight 2 - Cargo and Torso Dummy Drops

Flight 2 determines actual cargo and personnel parachute deployment characteristics and obtains slow-motion films of these deployments for evaluation.

Fuel load, ballast load, CG, and flap settings will be as specified for Flight 1. Number of bundles dropped and number of torso dummies dropped will depend on the size of the aircraft, but generally need not exceed four typical cargo bundles and two torso dummies. Torso dummies will be equipped with standard smokejumper personnel main parachutes. All types of approved smokejumper main parachutes will be dropped.

High-speed film of these drops will be taken from a chase plane flying in proximity to the evaluation aircraft.

A Smokejumper Operational Expert attached to the evaluation organization should, if possible, ride with the photographer in the chase plane to observe the parachute deployments. A qualified observer should be positioned in front of the jump door in the evaluation aircraft to observe these deployments.

7.3.6 Work Session D - Review of Flight 2

Reports from observers of the Flight 2 drops must clearly indicate there is no concern regarding proximity between deploying parachutes and control surfaces or protuberances of the aircraft. If concern does exist, the evaluation may be delayed to allow review of slow motion film of the deployments.

7.3.7 Work Session E - Potential Load Configurations

Work session D will identify potential practical load configurations of suited smokejumpers and cargo in the evaluation aircraft. Maximum smokejumper loads with short and long range fuel loads on board should be determined. Maximum training jump loads should be determined.

Practical loads should be evaluated with consideration to cabin room and weight and balance. In considering weight and balance,, fuel burn off and movement of spotters and jumpers to aft positions near the jump door must be considered.

Cargo, and if possible, smokejumper restraint procedures and configurations should be considered for these various loads.

The Evaluation Technical Writer and photographer may help document the load configurations identified. The Performance Test Conductor may assist with weight and balance considerations.

7.3.8 Work Session F - Evaluation of Smokejumper Accessory Needs

Work session F will evaluate the smokejumper accessories present in the aircraft and determine needed refinements. Also, this work session will identify additional accessory needs.

Configuration and location of primary, emergency, and cargo static-line anchor systems must be considered. Tether hard points or cables needs must be identified. Hand-rails, jump steps, door boots, fairings, spotter/pilot communications systems, and any other accessories needs must be considered.

The Accessories Design Team Leader must be present to provide information on practical locations and configurations for accessories within the limits of aircraft structure. Also there must be adequate measurements and photographs to allow design of accessories.

7.3.9 Work Session G - Operational Procedures

The purpose of Work Session G is to identify operational procedures for spotting, jumper exit, cargo dropping, and emergency exit procedures.

Preference will be given to application of standard procedures used in other similar smokejumper aircraft. Safety and operational efficiency of proposed procedures must be evaluated.

7.3.10 Flights 3, 4, 5, and 6 - Evaluation of Operational Smokejumper Procedures

Flights 3, 4, 5, and 6 will evaluate the load configurations identified in Work Session E, and operational procedures identified in work session G, and optimize them.

These flights should be structured after work session E and G have taken place so the questions raised in these work session are answered. Both fire and training mission loads should be evaluated. At least one flight must include drops of representative smokejumper cargo bundles.

At least the first two flights of jumpers and cargo drops will be filmed with high-speed camera equipment from a chase plane flying in proximity to the evaluation aircraft. Filming of additional flights will be at the discretion of the Functional Evaluation Conductor.

Smokejumpers and spotters will be thoroughly briefed before each flight on objectives of the test flight, specific procedures, and special safety concerns.

Jumpers will be selected for their level of experience and ability to offer qualified opinions and to compare various procedures used during the evaluation. If possible, the same evaluation jumpers should be used for all evaluation jumps so they can provide information comparing procedures.

Additional live jump or cargo drop flights ray be scheduled at the discretion of the Functional Evaluation Conductor.

7.3.11 Work Session H - Documentation of Functional Evaluation Tests, Conclusions, and Recommendations

During this work session, the required written evaluation, photographs, recommended load configurations, needed accessories, and smokejumper procedures will be compiled in readable format for presentation to the Evaluation Director. This material will be used in drafting "Preliminary Operational Guidelines" and the "Final Report."

7.4 AIR SAFETY AND COMMUNICATIONS

The following standards will be adhered to:

1. Weather: All flights will be performed under basic VFR conditions as defined by the FAA. If additional visibility and cloud clearance is needed, the Functional Evaluation Director will establish this standard before test flights begin. At the

start of each test day, the Project Air Officer will check weather and will determine if visibility, wind, turbulence, and other weather factors are conducive for the day's test.

2. The Project Air Officer will be responsible for coordinating air traffic control procedures with local authorities and FAA traffic control personnel. If in the judgment of the; Project Air Officer the flight test cannot be conducted in a safe manner because of air traffic problems, the flight tests will be altered or cancelled.
3. Aircraft loading, weight and balance: Computations will be made before each flight.
4. Briefings: Pilot and support personnel will be briefed in total mission intentions, daily flight intentions, air-to-ground communications, air-to-air communications, formation flight, hand signals, and emergency procedures.
5. Inspections: Aircraft will be inspected by the Project Air Officer and/or maintenance Specialist to assure that all air worthiness, S.T.C., 337, or additional special requirements are in order. Aviation personnel will be reviewed for proper qualification and recentness of experience.
6. Air safety will require maximum awareness of each person involved in test and evaluation.
7. Communication Requirements: Radio communications will be established linking Function Evaluation Conductor, Drop Zone Manager, local dispatch, and drop and photo aircraft on a common frequency.
8. Drop and photo aircraft shall maintain constant air-to-air VHF communication. A primary VHF frequency will be assigned for this purpose. A backup frequency will also be assigned.
9. To further enhance communication, pilots will be briefed before the test and as necessary before each flight. At this briefing:

    - Standard terminology will be agreed upon to prevent any misunderstanding between pilots.
    - Primary and backup radio frequencies will be assigned.
    - Drop patterns and radio contact points will be established.—Emergency breakaway procedures and terminology will be explained.
    - Lost-communications procedures will be explained, including breakaway procedure and DZ exit procedures for each aircraft.

7.5 FORMATION FLYING

Formation flying will be coordinated between the following persons:
Pilots of the evaluation and photo aircraft, smokejumper spotter(s).

A briefing prior to and formation flight will include the following:

- ♦ Spotting procedures
- ♦ Smokejumper exit procedure
- ♦ Cargo dropping procedures
- ♦ Emergency exit procedures

7.6 Photographs Required

7.6.1 Work Session A.	None
7.6.2 Work Session B.	35 mm slides and black and white prints of: Static lines extended. Clearance of static lines and D-bags from the horizontal stabilizer Aircraft protuberances that could potentially snag or catch a static line or D-bag Sharp edges on the aircraft door or fuselage which may fray or cut static lines provisions made to eliminate anticipated static line trail problems
7.6.3 Flight 1	High speed film of cargo static line and personnel static line D-bag trail test.
7.6.4 Work Session C.	Movie projection equipment for high speed film.
7.6.5 Flight 2.	High speed of cargo and torso dummy canopy deployments. Focus camera on proximity of deploying canopies to the horizontal stabilizer.
7.6.6 Work Session D.	None
7.6.7 Work Session E.	35 mm slides and black and white prints of all seriously considered load configurations.
7.6.8 Work Session F.	35 mm slides and black and white prints of all accessories present in the evaluation aircraft.35 mm black and white prints as required by the Accessories Design Team Leader and draftsman showing location and aircraft structure in the vicinity of proposed accessories.
7.6.9Work Session G.	35 mm color slides and black and white prints documenting the various spotter and exit procedures considered.
7.9.10 Flights 3,4,5,6.	High speed film of air drop as assigned.
7.6.11 Work Session H.	Insure that all required photography has been obtained.

7.7 SUGGESTED BRIEFING TOPICS

Before the functional evaluation, before each work session, and before each evaluation flight, personnel must be briefed. The following briefing topics are recommended.

7.8 Suggested Briefing/Functional Evaluation Conductor

The Evaluation Director shall brief the Functional Evaluation Conductor regarding the following topics:

1. Standard evaluation procedures
2. Specific evaluation procedures
3. Special safety concerns
4. Data recording and collection
5. Coordination required with Flight Performance Test Conductor and the Accessories Design Team Leader
6. Communications procedures
7. Proximity flying procedures between the evaluation aircraft and the photo aircraft

The Functional Evaluation Conductor shall brief his evaluation team as follows:

7.9 Briefing topics/Functional Evaluation Photographs

1. Type of photography and projection equipment required
2. Objective of photography in the various phases of the evaluation
3. Critical time-tables for film processing and review

7.10 Briefing topics/DZ Manager

1. Listing of specific DZ equipment, radio, and vehicles required
2. Amount of cargo to be retrieved
3. Communications responsibilities

7.11 Briefing Topics/Functional Evaluation Loadmaster

1. Specific cargo and smokejumper loads for each evaluation flight
2. Weight and balance information.

    - Briefing Topics/Spotter(s)
        1. DZ location
        2. Specific spotting and cargo dropping procedures to be used
        3. Special safety concerns regarding spotting procedures
        4. Communications
    - Briefing Topics/Smokejumpers
        1. Specific aircraft and exit procedures to be used
        2. Objectives of the evaluation flight
        3. Special safety considerations
        4. Input expected after the jump and attendance requirements at post flight work sessions

- Briefing Topics/Pilot(s)
  1. Procedures for each flight
  2. DZ location
  3. Airspeeds, flap settings desired
  4. Spotter/pilot communications procedures
  5. Procedure proximity flying procedures with photo aircraft
  6. Communications requirements
- The Functional Evaluation Conductor will brief the evaluation aircraft pilot, photo aircraft pilot, photographer, spotter, and jumpers before each flight.

Chapter

7

PART VI - PRELIMINARY OPERATIONAL GUIDELINES

8.1 REQUIREMENTS

The Evaluation Director is responsible for drafting Preliminary Operational Guidelines for Smokejumper Operations for the evaluation aircraft. These guidelines will be based on the information gained during the preceding stages of the evaluation. An outline for these guidelines is as follows:

8.2 OUTLINE

- Aircraft Performance Information
- Preparation for Airdrop
- Load Configurations
- Spotter Procedures
- Smoke jumper Procedures
- Cargo Dropping Procedures
- Special Considerations

Chapter

9

PART VII - FIELD EVALUATION

9.1 REQUIREMENTS

The first season of operational use of a new smokejumper aircraft will be considered a field evaluation. The Smokejumper Base Manager where the aircraft operates will be the Field Evaluation Conductor. The Field Evaluation Conductor is responsible to operate the aircraft as described in the "Preliminary Operational Guidelines" and to refine or modify those guidelines appropriately as he gains experience operating the aircraft. At the conclusion of the` field evaluation, the Field Evaluation Conductor will provide the Evaluation Director with a report.

9.2 OUTLINE

- Extent of Aircraft Use
- Flight Performance on Smokejumper Missions
- Evaluation of Accessories
- Best Load Configuration
- Best Operational Procedures

Chapter

10

PART VIII - FINAL REPORT

10.1 REQUIREMENTS

At the completion of all required evaluation work, the Evaluation Director will publish a Final Report. This report will serve aviation management to document suitability of the evaluation aircraft to be placed on the list of "approved" smokejumper aircraft. The report will also serve as an operating guide to smokejumper units who contract the aircraft for field service.

10.2 OUTLINE

- Basic Aircraft Configuration and Performance
- Preparation for Airdrop
- Smokejumper Flight Performance Data
- Operational Procedure

Chapter

11

PART IX - EVALUATION WORKBOOK

11.1 REQUIREMENTS

The evaluation Director is responsible for providing members of the evaluation organization with a Workbook containing pertinent information on the evaluation.

11.2 OUTLINE

11.3 Part A. General Information

- Specific Evaluation Aircraft Configuration and Performance data General Schedule of Events
- Organization
- Organization Assignments
- Special Safety Concerns
- Evaluation Support and Logistics Specific Schedule of Events

11.4 Part B. Evaluation Data Forms

11.5 Flight Performance Test Data Sheets

- Worksheets
- Comments and Conclusions

11.6 Functional Evaluation Data Sheets

- Air Drop Load Manifests
- Air Drop Conclusions
- Work Session Recommendations and Conclusions