

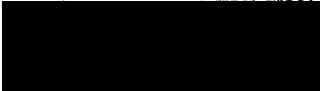


U.S. Department
of Transportation
**Federal Aviation
Administration**

East Michigan Flight Standards District Office

Willow Run Airport – East Side


May 15, 2012


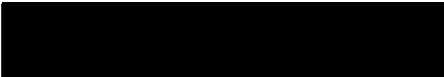
Mr. Kirt W. Kostich
Director of Operations
Royal Air Freight, Inc.



Dear Mr. Kostich:

The East Michigan Flight Standards District Office has reviewed Revision 8 to the Royal Air Freight, Inc. (BUHA) Training Program, which adds procedures for FAA notification of unsatisfactory pilot checkrides and the submission of annual reports of pilot checkride activity to the FAA.

Final approval is hereby granted to the Royal Air Freight, Inc. Training Program Revision 8, dated May 10, 2012. The effective date of this final approval is May 15, 2012. This approval shall remain in effect until revised by BUHA or otherwise notified by the FAA that revision is necessary under the provisions of 14 CFR §135.325(d). No reduction of training hours is applicable to this revision. This revision is applicable to all curriculums contained in the BUHA Training Program.

The List of Effective Pages has been stamped reflecting the Final Approval status and is being returned to you for inclusion in the BUHA Training Manual. A copy of this revision has been inserted into the FAA copy of the BUHA Training Program Manual.

If you have any questions, please feel free to contact this office at  or via electronic mail at 

Sincerely,


Bart M. Angle
Principal Operations Inspector

Enclosure: List of Effective Pages

MANUAL REVISION LETTER

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Issued To: FAA

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Royal Air Freight, Inc.

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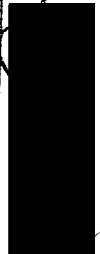
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FAA FINAL APPROVAL
EMI FSDO AGL-23

DATE: 5/15/2012 (REV 8)
NAME: BARTOLENEW M. ANGLE (B1)
SIGNATURE: 

Royal Air Freight, Inc.

Section 1
Introduction

Aircraft Training Manual

Credit For Previous Training/Experience (continued)

Part FAR 91 Qualified (same A/C type with training documents)

The Basic Indoctrination curriculum will be completed in its entirety. The rest of the curriculum will be completed as Recurrent training. After Testing and checking is complete a 8410-3 will be issued (covering FAR 135.293a,b,135.297 and 135.299 as required) with a new base month.

Ground School Credit for Qualified Instructors

A qualified instructor who conducts a classroom subject within a course, completes a course of ground training, or completes emergency drills will be considered to have completed that Subject, course, or drill for their own training requirement.

FAA Notification of A Failed Checkride

Royal Air Freight will provide notification to the POI of any Failed checkride and the current status of the airman involved.

FAA Notification of checkride pass/fail rates

Royal Air Freight will provide the FAA (POI), annual checkride Reports which include pass/fail results of all checkairman activity.

Royal Air Freight, Inc.

Section 1
Introduction

Aircraft Training Manual

Training Manual Revision Process

Training manual revisions are issued to individuals possessing manuals. It is the responsibility of each individual to promptly comply with revision instructions. A revision will show the date the revision becomes effective and the revision number.

Effective 7/24/98

Revision Number: Original

Individuals holding a training manual will receive a revision and be directed to destroy the outdated material. Revision numbers will be noted in the front of the training manual on the revision log page.

Training Manuals will be provided to each of the following:
Master Office File, FAA, Chief Pilot, Company Instructors,
and Check Airman.

Each revision to this Training Manual will be issued with a "Revision Letter" attached. This letter will contain specific instructions for the accomplishment of the revision. These instructions will appear in the "Action" column of the letter. The codes are as follows:

- R = Remove and Replace the affected page
- D = Delete and Destroy the affected page
- N = Insert a new page

The "Remark" column of the "Revision Letter" will give a brief description of the revised material.

The "Revision Letter" will be completed by the person accomplishing the revision in each manual. The completed "Revision Letter" will be returned to the Chief Pilot. It will be the responsibility of the Chief Pilot to assure that all "Revision Letters" are returned in a timely manner to insure revisions to all manuals have been accomplished.

AIRCRAFT TRAINING MANUAL

Royal Air Freight, Inc.




Manual Number: Ø1

Issued To: DTW FSDO

AIRCRAFT TRAINING MANUAL
FEDERAL AVIATION ADMINISTRATION
OFFICE AND PERSONNEL

The following District Office and personnel assigned the Company have prime responsibility for the related activities on all regulatory matters:

Flight Standards District Office
Willow Run Airport
East Side



Principal Operations Inspector: NICK PIPITONE

ROYAL AIR FREIGHT AIRCRAFT TRAINING MANUAL

MANUAL REVISION LETTER

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2 3 4		N	RCVD 12/14/06	
REV. #4 REMOVES ALL REFERENCE TO MU-2 AIRCRAFT				
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Approved: *[Signature]*
 AGL - DETROIT FSDO
 Principal Operations
 Inspector 12/2003

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Manual Serial #: 01 Issued To: F.A.A.

Revised By: _____ Date: _____

This form must be returned to the Chief Pilot no later than: 12-21-01

Initial Approval: _____

Royal Air Freight, Inc.

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Initial Approval 04/16/03

Principal Operations
Inspector

Royal Air Freight, Inc.


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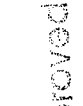
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Section 1 -
Training Manual Introduction

Section 1
Introduction

Aircraft Training Manual

Purpose

This training manual has been compiled for the use and guidance of Royal Air Freight, Inc. employees as they conduct training.

Introduction

This manual is the Royal Air Freight, Inc. approved training manual. Should any conflict arise between portions of this manual and existing FAR's or an FAA approved aircraft flight manual the applicable FAR or aircraft flight manual shall govern the action to be followed.

This manual contains twelve sections and four appendixes. The manual begins with an introduction as Section 1. Sections 2 through 7 present six categories of training. Section 8 contains the subject or training modules referred to in each curriculum. A discussion of all flight maneuvers applicable to required flight training is included as Section 9-12. Appendix A includes diagrams of the maneuvers. Appendix B includes the initial and recurrent training required of company check airman and instructors. Appendix C presents a list of all company instructors. Appendix D contains copies of the company training forms.

Numbering of Pages

Pages are numbered in sequence in each section. The revision number, effective date, and page number are located in the lower left corner of each page. The lower right corner is an area reserved for FAA use. The name of each curriculum and section it belongs in are at the top of each page.

General Training Areas and Facilities

General training areas for ground instruction will be company buildings, ramps, hangars, maintenance areas and aircraft. A Training classroom will be used for most ground training and will be free from routine distractions.

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Section 1
Introduction

Aircraft Training Manual

Reference Library

1. Company Operations Manual
2. Airman's Information Manual
3. Federal Aviation Regulations Part 1, 61, 91, 119, and 135
4. National Transportation Safety Board, Part 830
5. Aircraft Owners Handbook and Aircraft Flight Manual
6. Appropriate VFR and IFR navigation, departure, and approach information (SIDs, STARs, etc)
7. International Flight Information Manual
8. Title 49 CFR Sub-Chapter C, Hazardous Materials Regulations
9. IATA Dangerous Goods Regulations.
10. Advisory Circulars
 - AC 00-6A Aviation Weather
 - AC 00-45D Aviation Weather Services
 - AC 00-24B Thunderstorms
 - AC 60-14 Aviation Instructor's Handbook
 - AC 61-10A Refresher Courses, Private and Commercial Pilots
 - AC 61-21A Flight Training Handbook
 - AC 61-23C Pilot's Handbook of Aeronautical Knowledge
 - AC 61-27C Instrument Flying Handbook
 - AC 61-107 Operations Above 25,000 feet
 - AC 91-23A Pilot's Weight and Balance Handbook
 - AC 108-1 Air Carrier Security
 - AC 109-1 Aviation Security Acceptance and Handling Procedures
 - AC 00-30B Rules of Thumb for Avoiding or Minimizing Encounters with Clear Air Turbulence
 - AC 00-34A Aircraft Ground Handling and Servicing
 - AC 00-46D Aviation Safety Reporting Program
 - AC 00-54 Low Level Wind Shear
 - AC 00-57 Hazardous Mountain Winds
 - AC 20-5G Plane Sense
 - AC 20-29B Aircraft Fuel Anti-Icing Additives
 - AC 20-34D Prevention of Retractable Landing Gear Failures
 - AC 20-42C Hand Fire Extinguishers for Use in Aircraft
 - AC 20-43C Aircraft Fuel Control
 - AC 20-68B Radiation Safety Precautions for Weather Radar
 - AC 20-73 Aircraft Ice Protection
 - AC 20-105B Engine Power-loss Accident Prevention
 - AC 20-109A Service Difficulty Program (General Aviation)
 - AC 20-117 Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing
 - AC 39-7C Airworthiness Directives for General Aviation
 - AC 43-9C Maintenance Records: General Aviation Aircraft
 - AC 43-12A Preventive Maintenance
 - AC 60-4A Pilot's Spatial Disorientation
 - AC 60-6B Airplane Flight Manuals (AFM), Approved Manual Materials, Markings and Placards - Airplanes

AC 61-65C Part 61 (Revised) Certification: Pilot and Flight Instructors
AC 90-23E Wake Turbulence
AC 90-42F Traffic Advisory Practices at Non-Tower Airports
AC 90-48C Pilot's Role in Collision Avoidance
AC 90-66A Recommended Standard Traffic Patterns for Airplane Operations at Uncontrolled Airports
AC 90-79 Recommended Practices and Procedures for the use of Electronic Long-Range Navigation Equipment
AC 91-13C Cold Weather Operation of Aircraft
AC 91-42D Hazards of Rotating Propellers and Rotors
AC 91-44A Operational and Maintenance Practices for Emergency Locator Transmitters and Receivers
AC 97-1A Runway Visual Range
AC 107-1 Aviation Security - Airports
AC 108-2 Security Rules - Carriage of Weapons and Persons
AC 120-16C Continuous Airworthiness Maintenance Programs
AC 120-32 Air Transportation of Handicapped Persons
AC 120-44A Air Carrier First Aid Programs
AC 121-21B Information Guide for Training Programs and Manual Requirements in the Air Transportation of Hazardous Materials
AC 135-4A Aviation Security: Air Taxi Commercial Operators
AC 135-9 Part 135 Icing Limitations
AC 135-12A Passenger Safety Information Briefing and Cards
AC 135-16 Ground De-Icing and Anti-Icing
AC 135-17 Pilot Guide- Small A/C Ground Deicing

11. Flight Safety Materials

FAA P-8740-2 Density Altitude
FAA P-8740-5 Weight and Balance
FAA P-8740-12 Thunderstorms - Don't Flirt - Skirt 'Em
FAA P-8740-13 Engine Operations for Pilots
FAA P-8740-14 How to Fly Your HSI
FAA P-8740-19 Flying Light Twins Safely
FAA P-8740-23 Planning Your Takeoff
FAA P-8740-24 Tips on Winter Flying
FAA P-8740-25 Always Leave Yourself an Out
FAA P-8740-20 Preventing Accidents During A/C Ground Operations
FAA P-8740-29 Meet Your Aircraft
FAA P-8740-30B How to Obtain a Good Weather Briefing
FAA P-8740-35A All About Fuel
FAA P-8740-38 Normal Behavior
FAA P-8740-40 Wind Shear
FAA P-8740-41 Medical Facts for Pilots
FAA P-8740-44 Impossible Turn
FAA P-8740-47 Radio Communications Phraseology and Techniques
FAA P-8740-48 On Landings, Part I
FAA P-8740-49 On Landings, Part II
FAA P-8740-50 On Landings, Part III
FAA P-8740-51 How to Avoid a Midair Collision
FAA P-8740-52 The Silent Emergency

Section 1
Introduction

Aircraft Training Manual

Definitions

Courseware - Refers to the instructional material developed for each curriculum. This is the information in lesson plans, flight maneuver packages, computer software programs, audio-visual programs, workbooks, textbooks, references, and handouts. Courseware must accurately reflect curriculum requirements, be effectively organized, and properly integrate with instructional delivery methods.

Curriculum - A complete training agenda specific to an aircraft type and duty position. Each curriculum consists of several curriculum segments.

Curriculum Segment - Each curriculum segment represents an area of knowledge. One or more curriculum segments are required to create a curriculum and each curriculum segment consists of one or more subject modules.

Differences Training - Due to the differences in instrumentation and installed equipment, the skills and knowledge required to operate two aircraft of the same make and model can differ. Crewmembers trained on one variant of an aircraft may require additional training to safely and efficiently operate other variants of that aircraft.

Drill - The actual performance of a task, procedure or event.

Event - A task, maneuver, or procedure which involves physically performing the task, maneuver or procedure.

Duty Position - The functional position of a crewmember for part 135 operations. The duty positions included in this manual are pilot in command and second in command.

Eligibility Period - Three calendar months (the calendar month before the "training/checking month", the "training/checking month", and the calendar month after the "training/checking month"). During this period a crewmember must receive recurrent training, a flight check, or a competency check to remain in a qualified status. Training or checking completed during the eligibility period, is considered to be completed during the "training/checking month."

Self Study - Generally reading assignments accompanied by classroom Lecture and written/oral test to ensure complete understanding of the assigned material.

Section 1
Introduction

Aircraft Training Manual

Initial New Hire Training - This category is for personnel who have had no previous experience with the operator (newly hired personnel). However, it also applies to personnel employed by the operator but who have not previously held a crewmember duty position with that operator. Initial New Hire training includes basic indoctrination and training for a specific duty position and aircraft type.

Initial Equipment Training - This category of training is for personnel who have been previously trained and qualified for a duty position by the company (not a new hire) and are being reassigned to a different duty position on a different aircraft type when the crewmember has not been previously trained and qualified by the operator for that duty position and aircraft type.

Instructional Delivery Methods - Methodology used to convey information to the student. This may involve lectures, demonstrations, audio-visual presentations, self study assignments, workshops, drills examinations or a combination of these.

Recurrent Training - This category of training is for personnel who have been trained and qualified by the operator and will continue to serve in the same duty position and aircraft type and must receive recurring training or checking within an appropriate eligibility period to maintain currency.

Requalification Training - This category of training is for personnel who have been trained and qualified by the operator, but have become unqualified to serve in a particular duty position and/or aircraft due to not having received recurrent training and/or a required flight or competency check within the appropriate eligibility period.

Subject Module - The subject module, by itself or when combined with other subject modules, itemizes the subject matter in a curriculum segment. The subject module is an outline of related material that will be presented in a lesson plan. It is not a lesson plan. The instructor will use the subject module to ensure that all pertinent information is included in the lesson plan. The scope and content of each subject module depends upon the category of training and the curriculum in which the curriculum segment is to be incorporated. A subject module may also be referred to as a "Training Module". They are numbered for identification in Section 8.

Training Aids - These are devices which assist an instructor in the teaching-learning process.

Section 1
Introduction

Aircraft Training Manual

Training Environment - The training environment will be any area where training will take place. This may be a hangar, open field, classroom, meeting room or in the case of a self study assignment a quiet area of the student's choice. It is not necessarily an area associated with the daily operation of the company.

Testing and Checking - A curriculum segment that includes methods by which students demonstrate the required level of knowledge of a subject and whether they can apply the knowledge and skills learned in instructional situations to practical situations.

This curriculum segment also lists the requirements of the FARs that may apply such as check rides or operating experience. Written examinations are not included as a part of this manual.

Transition Training - This category of training is for personnel who have been previously trained and qualified for a specific duty position by the operator and are being assigned to the same duty position of a different aircraft type.

Upgrade Training - This category of training is for personnel who have been previously trained and qualified as second in command and are being assigned as pilot in command to the same aircraft type for which they were previously trained and qualified.

Identification of Training Categories, Curriculums and Curriculum Segments

The six categories of training contain curriculums for all the Royal Air Freight, Inc. aircraft. These curriculums are listed within the categories by aircraft type and duty position. Each curriculum lists relevant curriculum segments. Curriculum segments are composed of subject modules identified by number. Subject modules are not included within a curriculum but are grouped in Section 8.

Before beginning any training determine which category of training is required and what prerequisites apply. Then select from the appropriate category the specific curriculum by aircraft type. Each curriculum is different from the others in the same category. Use the table included in this introduction to determine at a glance what curriculum segments are required and record them on the Certificate of Curriculum Completion form.

The following table presents the curriculum segments required to be introduced in each curriculum. This table should be referred to when training is presented to insure that all required curriculum segments have been included.

Section 1
Introduction

Aircraft Training Manual

Company Training Prerequisites

Admission to training program curriculums will be granted by the Director of Operations or the Chief Pilot. Admission is based on compliance with the recency of experience requirements of FAR 61 and FAR 135 Subpart E "Flight Crewmember Requirements", FAR 135 Subpart G "Crewmember Testing Requirements" and FAR 135 Subpart H "Training". Minimum curriculum admission requirements are listed below.

Initial New Hire - Section 2

Required Certificates and Ratings

A PIC conducting passenger-carrying operations under Part 135 using a turbojet airplane must hold the following:

- o An Airline Transport Pilot Certificate
- o Airplane Category Rating
- o Appropriate Class Rating
- o Appropriate Type Rating
- o A valid First Class Medical Certificate

A SIC conducting operations under Part 135 must hold the following:

- o A Commercial Pilot Certificate or an Airline Transport Pilot Certificate
- o Instrument Rating (or ATP Certificate)
- o Airplane Category Rating
- o Appropriate Class Ratings
- o At least a valid Second Class Medical Certificate

PIC Minimum Flight Experience

Before serving as a PIC in VFR operations under Part 135, the pilot must have accumulated at least the following flight hour experience:

- o 500 total flight hours
- o 100 cross-country flight hours of which at least 25 hours were at night

Before serving as PIC in an IFR operation under Part 135, the pilot must have accumulated at least the following flight hour experience:

- o 1,200 total pilot flight hours
- o 500 cross-country flight hours
- o 100 hours of night flight time
- o 75 actual or simulated instrument flight hours, 50 of which must have been in actual flight.

Section 1
Introduction

Aircraft Training Manual

Initial Equipment - Section 3

A pilot must have completed Initial New Hire training by Royal Air Freight, Inc., possess the appropriate category and class ratings and not been assigned to this type and duty position by this company.

Recurrent - Section 4

A pilot must have completed Initial New Hire or Recurrent Training by Royal Air Freight, Inc. within the preceding 12 months

Requalification - Section 5

A pilot must have completed Initial New Hire or Recurrent Training by Royal Air Freight, Inc. within the preceding 48 months.

Transition - Section 6

A pilot must have been previously trained and qualified for a specific duty position by Royal Air Freight, Inc. on a different aircraft type.

Upgrade - Section 7

A pilot must have been trained by Royal Air Freight, Inc. for a duty position on the aircraft.

Company Instructors

Royal Air Freight, Inc. designates knowledgeable and experienced company personnel to act as company instructors. These instructors are listed in Appendix C.

Section 1
Introduction

Aircraft Training Manual

Sequence of Training

The sequence of training presented in this manual combines ground and flight training which together enhance the learning process. The Director of Operations or the Chief Pilot determines that the appropriate prerequisites have been satisfied and proceeds in the sequence presented and explained below.

1. Identify the category and curriculum of training needed.
2. Establish that the prerequisites have been satisfied. The prerequisites are listed in this part for each category and curriculum.
3. Find the appropriate curriculum and curriculum segments. Curriculum segments required in each curriculum are identified in this part (IDENTIFICATION OF TRAINING CATEGORIES, CURRICULUMS AND CURRICULUM SEGMENTS). Each curriculum segment lists relevant subject modules. Locate these subject modules in the back in Section 8 and present the material listed. Treat each subject module as the subject matter for a lesson plan.
4. Begin flight training as appropriate to enhance the ground training curriculum. Aircraft system usage and procedures will compliment the ground curriculum. The flight training called for is outlined in the subject modules listed in the relevant flight training curriculum segment. Sections 9-12 discuss and clarifies the procedures, maneuvers and performance standards for each task, procedure or maneuver identified in this manual.
5. Conduct the flight check(s) as required.

Course Completion Requirements

Ordinarily, a flight crewmember completes a ground/flight training curriculum segment by successfully accomplishing each training module/event and the specified number of training hours. Flight crewmembers are then required to successfully meet the requirements specified in the qualification curriculum segment. If a person fails to meet any of the qualification requirements because of a lack in flight proficiency, that person must be returned to training status. After retraining, an instructor recommendation is required for reaccomplishing the unsatisfactory qualification requirement.

Section 1
Introduction

Aircraft Training Manual

Course Completion Without Completing The Programmed Hours

A flight crewmember may successfully complete a ground/flight Training curriculum segment without completing the specified number of training hours or the training hours may be reduced for previous FAR part 135 experience, provided all of the following conditions are met:

1. The crewmember successfully completes all of the training modules/events required by the curriculum segment.
2. An instructor recommends the flight test be conducted before completion of the specified number of training hours. The recommendation must be suitably documented on proper form. (See Company Training Forms)
3. The flight crewmember satisfactorily completes the qualification curriculum segment requirements. If a flight crewmember fails to meet the qualification curriculum segment requirements because of a lack in flight proficiency, he then is required to complete all the training hours specified in the flight training curriculum segment. The crewmember must then be recommended by an instructor before reaccomplishing the failed qualification requirements.

Credit For Previous Training/Experience

For the training category of Initial New Hire, credit may be awarded for certain curriculum segments is based on the individuals previous training/experience. Each individual will be evaluated to determine his/her knowledge and skill level. Based on the evaluation the Chief Pilot/Director of Operations will recommend the training required.

The following provides guidelines for applying credits. All applied credits will be properly documented on company training forms.

Current and Qualified (current 8410-3 or equivalent in same A/C type)

All curriculum Segments will be covered during a training Evaluation. Differences that are found to exist between Royal Air Freight and previous operator will be covered. Testing and Checking will at minimum cover FAR 135.293(a)(1) and a 8410-3 will be issued using the previous base month for currency.

Previously Qualified (non current 8410 same A/C type)

The Basic Indoctrination curriculum will be evaluated as above and The remaining curriculum segments will be handled as requalification as appropriate. After Testing and checking is complete a 8410-3 will be issued (covering FAR 135.293a,b,135.297 and 135.299 as required) with a new base month.

Royal Air Freight, Inc.

Section 1
Introduction

Aircraft Training Manual

Credit For Previous Training/Experience (continued)

Part FAR 91 Qualified (same A/C type with training documents)

The Basic Indoctrination curriculum will be completed in its entirety. The rest of the curriculum will be completed as Recurrent training. After Testing and checking is complete a 8410-3 will be issued (covering FAR 135.293a,b,135.297 and 135.299 as required) with a new base month.

Ground School Credit for Qualified Instructors

A qualified instructor who conducts a classroom subject Within a course, completes a course of ground training, or Completes emergency drills will be considered to have completed that Subject, course, or drill for their own training requirement.

FAA Notification of A Failed Checkride

Royal Air Freight will provide notification to the POI of any Failed checkride and the current status of the airman involved.

FAA Notification of checkride pass/fail rates

Royal Air Freight will provide the FAA (POI), annual checkride Reports which include pass/fail results of all checkairman activity.

Royal Air Freight, Inc.

Section 1
Introduction

Aircraft Training Manual

Training Manual Revision Process

Training manual revisions are issued to individuals possessing manuals. It is the responsibility of each individual to promptly comply with revision instructions. A revision will show the date the revision becomes effective and the revision number.

Effective 7/24/98

Revision Number: Original

Individuals holding a training manual will receive a revision and be directed to destroy the outdated material. Revision numbers will be noted in the front of the training manual on the revision log page.

Training Manuals will be provided to each of the following:
Master Office File, FAA, Chief Pilot, Company Instructors,
and Check Airman.

Each revision to this Training Manual will be issued with a "Revision Letter" attached. This letter will contain specific instructions for the accomplishment of the revision. These instructions will appear in the "Action" column of the letter. The codes are as follows:

R = Remove and Replace the affected page
D = Delete and Destroy the affected page
N = Insert a new page

The "Remark" column of the "Revision Letter" will give a brief description of the revised material.

The "Revision Letter" will be completed by the person accomplishing the revision in each manual. The completed "Revision Letter" will be returned to the Chief Pilot. It will be the responsibility of the Chief Pilot to assure that all "Revision Letters" are returned in a timely manner to insure revisions to all manuals have been accomplished.

Section 2 -
New Hire Training

Royal Air Freight, Inc.

Section 2 New Hire


Aircraft Training Manual

Purpose

Initial New Hire Training - This category is for personnel who have had no previous experience with Royal Air Freight, Inc. (newly hired personnel). However, it also applies to personnel who have not previously held a crewmember duty position with Royal Air Freight, Inc.. Initial New Hire training includes basic indoctrination and training for a specific duty position and aircraft type.

Pilot in Command Training	JET	TURBINE/ PISTON
Basic Indoctrination Training	32:00	24:00
Aircraft Ground Training	56:00	16:00
Emergency Training	8:00	4:00
Flight Training	12:00	8:00
Special Subjects Training	1:00	1:00
Differences Training	1:00	1:00
Testing and Checking	2:00	2:00
	-----	-----
	112:00	56:00

Second in Command Training	JET	TURBINE/ PISTON
Basic Indoctrination Training	32:00	24:00
Aircraft Ground Training	56:00	16:00
Emergency Training	8:00	4:00
Flight Training	12:00	8:00
Differences Training	1:00	1:00
Testing and Checking	2:00	2:00
	-----	-----
	111:00	55:00

Approved 
AGL - DETROIT FSDO
Principal Operations
Inspector

Section 2
New Hire

Aircraft Training Manual

CATEGORY: INITIAL NEW HIRE
CURRICULUM SEGMENT: Basic Indoctrination

Purpose:

This curriculum segment will acquaint the flight crewmember with the operator's policies, procedures, forms, organizational and administrative practices, and ensures that the flight crewmember has acquired basic airman knowledge and abilities.

Enrollment Prerequisites:

Compliance with the requirements as set forth in Section 1 of this manual.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio-visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

Basic Indoctrination Training - Company Specific

- No. 1 Duties and Responsibilities
- No. 2 Federal Aviation Regulations and NTSB 830
- No. 3 Operations Manual, Operating Certificate and Operations Specifications

Basic Indoctrination Training - Airmen Specific

- No. 4 Company Flight Control
- No. 5 Weight and Balance
- No. 6 Aircraft Performance and Airport Analysis
- No. 7 Meteorology
- No. 8 Navigation
- No. 9 Air Traffic Control Procedures
- No. 10 Enroute and Terminal Area Charting and Flight Planning
- No. 11 Concepts of Instrument Procedures

Section 2
New Hire

Aircraft Training Manual

CATEGORY: INITIAL NEW HIRE
CURRICULUM SEGMENT: Aircraft Ground Training

Purpose:

This curriculum segment will provide the flight crewmember with a detailed and thorough knowledge of the aircraft, its systems, performance and characteristics.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, workshops, drills, and visits to the aircraft.

Subject Modules:

A/C Ground Training - General Operational Subjects

- No. 25 Flight Control
- No. 26 Weight and Balance - Specific
- No. 27 Operations Specifications (Authorizations and Limitations)
- No. 28 Minimum Equipment List Use
- No. 29 Flight Techniques in Adverse Weather
- No. 30 Flight Planning
- No. 31 Aircraft Flight Manual
- No. 32 Company Operations Manual
- No. 33 Aircraft Avionics Operation
- No. 34 Performance

A/C Ground Training - A/C Systems

- No. 35 Aircraft General Description
- No. 36 Equipment and Furnishings
- No. 37 Emergency Equipment
- No. 38 Powerplant
- No. 39 Electrical
- No. 40 Pneumatic
- No. 41 Air Conditioning and Pressurization
- No. 42 Ground Icing Conditions
- No. 43 Ice & Rain Protection
- No. 44 Hydraulics
- No. 45 Landing Gear and Brakes

Royal Air Freight, Inc.

Section 2
New Hire

Aircraft Training Manual

- No. 46 Flight Controls
- No. 47 Fuel Handling and Management
- No. 48 Communications Equipment
- No. 49 Flight Instruments
- No. 50 Navigation Equipment
- No. 51 Autopilot
- No. 52 Warning Systems
- No. 53 Fire and Overheat Protection
- No. 54 Oxygen
- No. 55 Lighting

A/C Ground Training - Systems Integration

- No. 56 Use of Checklists
- No. 57 Cockpit Familiarization
- No. 58 Preflight/Inflight Planning
- No. 59 Use of Weather Radar/CRT's
- No. 60 Navigation/Communications Systems
- No. 61 Autopilot/Flight Director
- No. 85 RVSM Operations

Section 2
New Hire

Aircraft Training Manual

CATEGORY: INITIAL NEW HIRE
CURRICULUM SEGMENT: Emergency Training

Purpose:

This curriculum segment will give the flight crewmember training in emergency situations as required by FAR 135.331.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio-visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

General Emergency Situation Training

- No. 12 General Emergency Training - Flight Duties and Responsibilities.
- No. 13 Crew Coordination and Company Communications
- No. 14 Aircraft Fires
- No. 15 First Aid Equipment
- No. 16 Illness, Injury, and Basic First Aid
- No. 17 Ground Evacuation
- No. 18 Rapid Decompression
- No. 19 Previous Aircraft Accidents/Incidents
- No. 20 Crew Incapacitation
- No. 21 Hijacking and Other Unusual Situations

Emergency Drill Training

- No. 22 Hand-Held Fire Extinguishers
- No. 23 Portable Oxygen Systems
- No. 24 Emergency Exits

Section 2
New Hire

Aircraft Training Manual

CATEGORY: INITIAL NEW HIRE
CURRICULUM SEGMENT: Flight Training

Purpose:

This section provides flight training to ensure that the crewmember is trained and proficient in the flight tasks that may be required during normal or abnormal aircraft operations.

Enrollment Prerequisites:

A crewmember must have completed Basic Indoctrination.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 62 Aircraft Preflight
No. 63 Surface Operation
No. 64 Takeoff
No. 66 Climb
No. 67 En Route
No. 68 Descent
No. 69 Approaches
No. 70 Landings
No. 71 After Landing
No. 72 Miscellaneous Flight Procedures
No. 74 Normal and Abnormal Procedures
No. 75 Emergency Flight Procedures

Royal Air Freight, Inc.

Section 2
New Hire

Aircraft Training Manual

CATEGORY: INITIAL NEW HIRE
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

A crewmember must have completed the basic indoctrination curriculum segment.

Instructional Delivery Methods

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff
No. 84 Flight During Icing Conditions

Section 2
New Hire

Aircraft Training Manual

CATEGORY: INITIAL NEW HIRE
CURRICULUM SEGMENT: Differences Training

Purpose:

The purpose of this curriculum segment is to expose and explain the differences between the company's aircraft of same make i.e. EMB-110, Learjet, Cessna.

Enrollment prerequisite:

The crewmember must have completed Basic Indoctrination Training.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 76 Differences Ground Training
No. 77 Differences in Flight Characteristics

Section 2
New Hire

Aircraft Training Manual

CATEGORY: INITIAL NEW HIRE
CURRICULUM SEGMENT: Testing and Checking

Purpose:

This section evaluates the training presented and ensures completion of the curriculum with the administration of the required FAA flight checks and evaluations.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the initial new hire curriculum.

Instructional Delivery Methods:

Commercial examination with prompt instructor evaluation of student's performance through written examinations and immediate post flight critique of flight check performance.

Subject Modules:

- No. 78 Competency Check 135.293
- No. 79 Proficiency Check 135.297 (PIC only)
- No. 80 Line Check 135.299 (PIC only)
- No. 81 Written Examinations

Section 3 -
Initial Equipment Training

Royal Air Freight, Inc.

Section 3 Initial Equipment

Aircraft Training Manual

Purpose

Initial equipment training - This category of training is for personnel who have been previously trained and qualified for a duty position by Royal Air Freight, Inc. (not a new hire) and are being reassigned. For 135 operations the crewmember is being reassigned to different duty position on a different aircraft type when the crewmember has not been previously trained and qualified by Royal Air Freight, Inc. for that duty position and aircraft type.

Pilot In Command Training	JET	TURBINE/ PISTON

Aircraft Ground Training	48:00	16:00
Differences Training	1:00	1:00
Emergency Training	4:00	4:00
Flight Training	10:00	6:00
Special Subjects	1:00	1:00
Testing and Checking	2:00	2:00
	-----	-----
	66:00	32:00
	JET	TURBINE/ PISTON

Second in Command Training		
Aircraft Ground Training	48:00	16:00
Differences Training	1:00	1:00
Emergency Training	4:00	4:00
Flight Training	10:00	6:00
Testing and Checking	2:00	2:00
	-----	-----
	65:00	31:00

Section 3
Initial Equipment

Aircraft Training Manual

CATEGORY: INITIAL EQUIPMENT
CURRICULUM SEGMENT: Aircraft Ground Training

Purpose:

This curriculum segment will provide the flight crewmember with a detailed and thorough knowledge of the aircraft, its systems, performance and characteristics.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, workshops, drills, and visits to the aircraft.

Subject Modules:

A/C Ground Training - General Operational Subjects

- No. 7 Meteorology
- No. 8 Navigation
- No. 9 Air Traffic Control Procedures

- No. 25 Flight Control
- No. 26 Weight and Balance - Specific
- No. 27 Operations Specifications (Authorizations and Limitations)
- No. 28 Minimum Equipment List Use
- No. 29 Flight Techniques in Adverse Weather
- No. 30 Flight Planning
- No. 31 Aircraft Flight Manual
- No. 32 Company Operations Manual
- No. 33 Aircraft Avionics Operation
- No. 34 Performance

A/C Ground Training - A/C Systems

- No. 35 Aircraft General Description
- No. 36 Equipment and Furnishings
- No. 37 Emergency Equipment
- No. 38 Powerplant and Propeller
- No. 39 Electrical
- No. 40 Pneumatic
- No. 41 Air Conditioning and Pressurization
- No. 42 Ground Icing Conditions
- No. 43 Ice and Rain Protection
- No. 44 Hydraulics

Section 3
Initial Equipment

Aircraft Training Manual

- No. 45 Landing Gear and Brakes
- No. 46 Flight Controls
- No. 47 Fuel Handling and Management
- No. 48 Communications Equipment
- No. 49 Flight Instruments
- No. 50 Navigation Equipment
- No. 51 Autopilot
- No. 52 Warning Systems
- No. 53 Fire and Overheat Protection
- No. 54 Oxygen
- No. 55 Lighting

A/C Ground Training - Systems Integration

- No. 56 Use of Checklists
- No. 57 Cockpit Familiarization
- No. 58 Preflight/Inflight Planning
- No. 59 Use of Weather Radar/CRT's
- No. 60 Navigation/Communications Systems
- No. 61 Autopilot/Flight Director
- No. 85 RVSM Operations

Section 3
Initial Equipment

Aircraft Training Manual

CATEGORY: INITIAL EQUIPMENT
CURRICULUM SEGMENT: Differences Training

Purpose:

The purpose of this curriculum segment is to expose and explain the differences between the company's aircraft of same make i.e. EMB-110, Learjet, Cessna.

Enrollment Prerequisite:

The crewmember must have completed Basic Indoctrination Training.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 76 Differences Ground Training
No. 77 Differences in Flight Characteristics

Section 3
Initial Equipment

Aircraft Training Manual

CATEGORY: INITIAL EQUIPMENT
CURRICULUM SEGMENT: Emergency Training

Purpose:

This curriculum segment will give the flight crewmember training in emergency situations as required by FAR 135.331.

Enrollment Prerequisites:

The enrollment prerequisites are satisfactory completion of the following: Basic Indoctrination and Ground Training.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio-visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

General Emergency Situation Training

- No. 12 General Emergency Training - Flight Duties and Responsibilities.
- No. 13 Crew Coordination and Company Communications
- No. 14 Aircraft Fires
- No. 15 First Aid Equipment
- No. 16 Illness, Injury, and Basic First Aid
- No. 17 Ground Evacuation
- No. 18 Rapid Decompression
- No. 19 Previous Aircraft Accidents/Incidents
- No. 20 Crew Incapacitation
- No. 21 Hijacking and Other Unusual Situations

Emergency Drill Training

- No. 22 Hand-Held Fire Extinguishers
- No. 23 Portable Oxygen Systems
- No. 24 Emergency Exits

Section 3
Initial Equipment

Aircraft Training Manual

CATEGORY: INITIAL EQUIPMENT
CURRICULUM SEGMENT: Flight Training

Purpose:

This section provides flight training to ensure that the crewmember is trained and proficient in the flight tasks that may be required during normal or abnormal aircraft operations.

Enrollment Prerequisites:

A crewmember must have completed Basic Indoctrination.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 62 Aircraft Preflight
No. 63 Surface Operation
No. 64 Takeoff
No. 66 Climb
No. 67 En Route
No. 68 Descent
No. 69 Approaches
No. 70 Landings
No. 71 After Landing
No. 72 Miscellaneous Flight Procedures
No. 74 Normal and Abnormal Procedures
No. 75 Emergency Flight Procedures

Royal Air Freight, Inc.

Section 3
Initial Equipment

Aircraft Training Manual

CATEGORY: INITIAL EQUIPMENT
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

A crewmember must have completed the basic indoctrination curriculum segment.

Instructional Delivery Methods:

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff
No. 84 Flight During Icing Conditions

Section 3
Initial Equipment

Aircraft Training Manual

CATEGORY: INITIAL EQUIPMENT
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

A crewmember must have completed the basic indoctrination curriculum segment.

Instructional Delivery Methods:

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff
~~No. 84~~ MU-2 Flight During Icing Conditions

Royal Air Freight, Inc.

Section 3
Initial Equipment

Aircraft Training Manual

CATEGORY: INITIAL EQUIPMENT
CURRICULUM SEGMENT: Testing and Checking

Purpose:

This section evaluates the training presented and ensures completion of the curriculum with the administration of the required FAA flight checks and evaluations.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the initial equipment curriculum.

Instructional Delivery Methods:

Commercial examination with prompt instructor evaluation of student's performance through written examinations and immediate post flight critique of flight check performance.

Subject Modules

- No. 78 Competency Check 135.293
- No. 79 Proficiency Check 135.297
- No. 80 Line Check 135.299
- No. 81 Written Examinations

Section 4 -
Recurrent Training

Royal Air Freight, Inc.

Section 4 Recurrent

Aircraft Training Manual

Purpose

Recurrent Training - This category of training is for personnel who have been trained and qualified by Royal Air Freight, Inc., who will continue to serve in the same duty position and aircraft Type, and who must receive recurring training and/or checking within an appropriate eligibility period to maintain currency.

The Recurrent Ground Training curriculum ensures that the crewmember is adequately trained and currently proficient in his/her assigned crew position in the aircraft. The recurrent ground training includes review to determine the crewmember's knowledge of the aircraft and his/her crew position, instruction as necessary in the subjects required for initial ground training including low-altitude windshear and emergency training.

Recurrent Emergency Drill training requires the crewmember to actually operate the items of emergency equipment (hands on) every 24 months. During the alternate 12 month periods, the emergency drill training will be accomplished by pictorial presentation or demonstration.

Annual Recurrent Training - Pilot In Command

JET

TURBINE/
PISTON

Emergency Situation Training	2:00	1:00
Emergency Drill Training	2:00	1:00
Aircraft Ground Training	8:00	4:00
Differences Training	1:00	1:00
Flight Training	4:00	3:00
Special Subjects Training	1:00	1:00
Testing and Checking	1:00	1:00
	20:00	12:00

Annual Recurrent Training - Second In Command

JET

TURBINE/
PISTON

Emergency Situation Training	2:00	1:00
Emergency Drill Training	2:00	1:00
Aircraft Ground Training	8:00	4:00
Differences Training	1:00	1:00
Flight Training	4:00	3:00
Testing and Checking	1:00	1:00

Approved

AGL - DETROIT FSDO
Principal Operations
Inspector

19:00

11:00

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Emergency Situation Training

Purpose:

This curriculum segment will give the flight crewmember training in emergency situations as required by FAR 135.331.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or recurrent training within the previous 12 months.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio- visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

- No. 12 General Emergency Training - Flight Duties and Responsibilities.
- No. 13 Crew Coordination and Company Communications
- No. 14 Aircraft Fires
- No. 15 First Aid Equipment
- No. 16 Illness, Injury, and Basic First Aid
- No. 17 Ground Evacuation
- No. 18 Rapid Decompression
- No. 19 Previous Aircraft Accidents/Incidents
- No. 20 Crew Incapacitation
- No. 21 Hijacking and Other Unusual Situations

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Emergency Drill Training

Purpose:

This curriculum segment will give the flight crewmember training and practice in emergency drills as required by FAR 135.331. Actual hands on training will be accomplished every 24 months.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or recurrent training within the previous 12 months.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio-visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

- No. 22 Hand-Held Fire Extinguishers
- No. 23 Portable Oxygen Systems
- No. 24 Emergency Exits

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Aircraft Ground Training

Purpose:

This curriculum segment will provide the flight crewmember with a detailed and thorough knowledge of the aircraft, its systems, performance and characteristics.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or recurrent training within the previous 12 months.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, workshops, drills, and visits to the aircraft.

Subject Modules:

A/C Ground Training - General Operational Subjects

- No. 25 Flight Control
- No. 26 Weight and Balance - Specific
- No. 27 Operations Specifications (Authorizations and Limitations)
- No. 28 Minimum Equipment List Use
- No. 29 Flight Techniques in Adverse Weather
- No. 30 Flight Planning
- No. 31 Aircraft Flight Manual
- No. 32 Company Operations Manual
- No. 33 Aircraft Avionics Operation
- No. 34 Performance

A/C Ground Training - A/C Systems

- No. 35 Aircraft General Description
- No. 36 Equipment and Furnishings
- No. 37 Emergency Equipment
- No. 38 Powerplant
- No. 39 Electrical
- No. 40 Pneumatic
- No. 41 Air Conditioning and Pressurization
- No. 42 Ground Icing Conditions
- No. 43 Ice and Rain Protection

Royal Air Freight, Inc.

Section 4
Recurrent

Aircraft Training Manual

- No. 44 Hydraulics
- No. 45 Landing Gear and Brakes
- No. 46 Flight Controls
- No. 47 Fuel Handling and Management
- No. 48 Communications Equipment
- No. 49 Flight Instruments
- No. 50 Navigation Equipment
- No. 51 Autopilot
- No. 52 Warning Systems
- No. 53 Fire and Overheat Protection
- No. 54 Oxygen
- No. 55 Lighting

A/C Ground Training - Systems Integration

- No. 56 Use of Checklists
- No. 57 Cockpit Familiarization
- No. 58 Preflight/Inflight Planning
- No. 59 Use of Weather Radar/CRT's
- No. 60 Navigation/Communications Systems
- No. 61 Autopilot/Flight Director
- No. 85 RVSM Operations

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Differences Training

Purpose:

The Purpose of this curriculum segment is to expose and explain the differences between the company's aircraft of same make i.e. EMB-110, Learjet, Cessna.

Enrollment Prerequisite:

Completion of the Basic Indoctrination curriculum segment or recurrent training within the previous 12 months.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 76 Differences Ground Training
No. 77 Differences in Flight Characteristics

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Flight Training

Purpose:

This section provides flight training to ensure that the crewmember is trained and proficient in the flight tasks that may be required during normal or abnormal aircraft operations.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or recurrent training within the previous 12 months.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 62 Aircraft Preflight
No. 63 Surface Operation
No. 64 Takeoff
No. 66 Climb
No. 67 En Route
No. 68 Descent
No. 69 Approaches
No. 70 Landings
No. 71 After Landing
No. 72 Miscellaneous Flight Procedures
No. 74 Normal and Abnormal Procedures
No. 75 Emergency Flight Procedures

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

A crewmember must have completed the basic indoctrination curriculum segment.

Instructional Delivery Methods

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff
No. 84 Flight During Icing Conditions

Royal Air Freight, Inc.

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

A crewmember must have completed the basic indoctrination curriculum segment.

Instructional Delivery Methods

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff
~~No. 84~~ MU-2 Flight During Icing Conditions

Royal Air Freight, Inc.

Section 4
Recurrent

Aircraft Training Manual

CATEGORY: RECURRENT TRAINING
CURRICULUM SEGMENT: Testing and Checking

Purpose:

This section evaluates the training presented and ensures completion of the curriculum with the administration of the required FAA flight checks and evaluations.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the recurrent curriculum.

Instructional Delivery Methods:

Commercial examination with prompt instructor evaluation of the students performance through written examinations and immediate post flight critique of flight check performance.

Subject Modules:

- No. 78 Competency Check 135.293
- No. 79 Proficiency Check 135.297 (PIC only)
- No. 80 Line Check 135.299 (PIC only)
- No. 81 Written Examinations



Section 5 -
Requalification Training

Section 5
Requalification

Aircraft Training Manual

Purpose

Requalification Training - This category of training is for personnel who have been trained and qualified by Royal Air Freight, Inc., but have become unqualified to serve in a particular duty position and/or aircraft due to not receiving recurrent training and/or a required flight or competency check within the appropriate eligibility period.

Requalification training is also applicable to PIC's who are being reassigned as SIC's on the same aircraft type when seat-dependent training is required.

UP TO 12 MONTHS PAST DUE
Requalification Training

	JET	TURBINE/ PISTON
Aircraft Ground Training	8:00	4:00
Differences Training	1:00	1:00
Emergency Training	2:00	2:00
Flight Training	4:00	3:00
Special Subjects Training (PIC ONLY)	1:00	1:00
Testing and Checking	2:00	2:00
	-----	-----
	18:00	13:00

13 TO 35 MONTHS PAST DUE
Requalification Training

	JET	TURBINE/ PISTON
Aircraft Ground Training	16:00	8:00
Differences Training	1:00	1:00
Emergency Training	2:00	2:00
Flight Training	8:00	3:00
Special Subjects Training (PIC ONLY)	1:00	1:00
Testing and Checking	2:00	2:00
	-----	-----
	30:00	17:00

Approved

AGL - DETROIT FSDO
Principal Operations
Inspector

Section 5
Requalification

Aircraft Training Manual

CATEGORY: REQUALIFICATION TRAINING
CURRICULUM SEGMENT: Aircraft Ground Training

Purpose:

This curriculum segment will provide the flight crewmember with a detailed and thorough knowledge of the aircraft, its systems, performance and characteristics.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or Recurrent training within the previous 48 months.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, workshops, drills, and visits to the aircraft.

Subject Modules:

A/C Ground Training - General Operational Subjects

- No. 25 Flight Control
- No. 26 Weight and Balance - Specific
- No. 27 Operations Specifications (Authorizations and Limitations)
- No. 28 Minimum Equipment List Use
- No. 29 Flight Techniques in Adverse Weather
- No. 30 Flight Planning
- No. 31 Aircraft Flight Manual
- No. 32 Company Operations Manual
- No. 33 Aircraft Avionics Operation
- No. 34 Performance

A/C Ground Training - A/C Systems

- No. 35 Aircraft General Description
- No. 36 Equipment and Furnishings
- No. 37 Emergency Equipment
- No. 38 Powerplant
- No. 39 Electrical
- No. 40 Pneumatic
- No. 41 Air Conditioning and Pressurization
- No. 42 Ground Icing Conditions
- No. 43 Ice and Rain Protection

Section 5
Requalification

Aircraft Training Manual

- No. 44 Hydraulics
- No. 45 Landing Gear and Brakes
- No. 46 Flight Controls
- No. 47 Fuel Handling and Management
- No. 48 Communications Equipment
- No. 49 Flight Instruments
- No. 50 Navigation Equipment
- No. 51 Autopilot
- No. 52 Warning Systems
- No. 53 Fire and Overheat Protection
- No. 54 Oxygen
- No. 55 Lighting

A/C Ground Training - Systems Integration

- No. 56 Use of Checklists
- No. 57 Cockpit Familiarization
- No. 58 Preflight/Inflight Planning
- No. 59 Use of Weather Radar/CRT's
- No. 60 Navigation/Communications Systems
- No. 61 Autopilot/Flight Director
- No. 85 RVSM Operations

Section 5
Requalification

Aircraft Training Manual

CATEGORY: REQUALIFICATION TRAINING
CURRICULUM SEGMENT: Differences Training

Purpose:

The purpose of this curriculum segment is to expose and explain the differences between the company's aircraft of same make i.e. EMB-110, Learjet, Cessna.

Enrollment Prerequisite:

Completion of the Basic Indoctrination curriculum segment or Recurrent training within the previous 48 months.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 76 Differences Ground Training
No. 77 Differences in Flight Characteristics

Section 5
Requalification

Aircraft Training Manual

CATEGORY: REQUALIFICATION TRAINING
CURRICULUM SEGMENT: Emergency Training

Purpose:

This curriculum segment will give the flight crewmember training in emergency situations as required by FAR 135.331. Emergency drill training will include hands on training if hands on training has not been done in the last 24 months.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or Recurrent training within the previous 48 months.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio-visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

General Emergency Situation Training

- No. 12 General Emergency Training - Flight Duties and Responsibilities.
- No. 13 Crew Coordination and Company Communications
- No. 14 Aircraft Fires
- No. 15 First Aid Equipment
- No. 16 Illness, Injury, and Basic First Aid
- No. 17 Ground Evacuation
- No. 18 Rapid Decompression
- No. 19 Previous Aircraft Accidents/Incidents
- No. 20 Crew Incapacitation
- No. 21 Hijacking and Other Unusual Situations

Emergency Drill Training

- No. 22 Hand-Held Fire Extinguishers
- No. 23 Portable Oxygen Systems
- No. 24 Emergency Exits

Section 5
Requalification

Aircraft Training Manual

CATEGORY: REQUALIFICATION TRAINING
CURRICULUM SEGMENT: Flight Training

Purpose:

This section provides flight training to ensure that the crewmember is trained and proficient in the flight tasks that may be required during normal or abnormal aircraft operations.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or Recurrent training within the previous 48 months.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

- No. 62 Aircraft Preflight
- No. 63 Surface Operation
- No. 64 Takeoff
- No. 66 Climb
- No. 67 En Route
- No. 68 Descent
- No. 69 Approaches
- No. 70 Landings
- No. 71 After Landing
- No. 72 Miscellaneous Flight Procedures
- No. 74 Normal and Abnormal Procedures
- No. 75 Emergency Flight Procedures

Section 5
Requalification

Aircraft Training Manual

CATEGORY: REQUALIFICATION TRAINING
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment or Recurrent training within the previous 48 months.

Instructional Delivery Methods

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff
No. 84 Flight During Icing Conditions

Section 5
Requalification

Aircraft Training Manual

CATEGORY: REQUALIFICATION TRAINING
CURRICULUM SEGMENT: Testing and Checking

Purpose:

This section evaluates the training presented and ensures completion of the curriculum with the administration of the required FAA flight checks and evaluations.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the requalification curriculum.

Instructional Delivery Methods:

Commercial examination with prompt instructor evaluation of student's performance through written examinations and immediate post flight critique of flight check performance.

Subject Modules:

- No. 78 Competency Check 135.293
- No. 79 Proficiency Check 135.297
- No. 80 Line Check 135.299
- No. 81 Written Examinations



Section 6 -
Transition Training

Royal Air Freight, Inc.

Section 6
Transition

Aircraft Training Manual

Purpose

Transition Training - This category of training is intended for personnel who have been previously trained and qualified for a specific duty position by Royal Air Freight, Inc. and are being assigned to the same duty position on a different aircraft type.

Transition Training - Pilot In Command	JET	TURBINE/ PISTON
Aircraft Ground Training	48:00	16:00
Differences Training	1:00	1:00
Emergency Training	1:00	1:00
Flight Training	8:00	6:00
Special Subjects Training	1:00	1:00
Testing and Checking	2:00	2:00
	61:00	27:00

Transition Training - Second In Command	JET	TURBINE/ PISTON
Aircraft Ground Training	48:00	16:00
Differences Training	1:00	1:00
Emergency Training	1:00	1:00
Flight Training	8:00	6:00
Testing and Checking	2:00	2:00
	60:00	26:00

Approved

AGL - DETROIT FSDO
Principal Operations
Inspector

Section 6
Transition

Aircraft Training Manual

CATEGORY: TRANSITION TRAINING
CURRICULUM SEGMENT: Aircraft Ground Training

Purpose:

This curriculum segment will provide the flight crewmember with a detailed and thorough knowledge of the aircraft, its systems, performance and characteristics.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the initial new hire curriculum.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, workshops, drills, and visits to the aircraft.

Subject Modules:

A/C Ground Training - General Operational Subjects

- No. 7 Meteorology
- No. 8 Navigation
- No. 9 Air Traffic Control Procedures
- No. 25 Flight Control
- No. 26 Weight and Balance - Specific
- No. 27 Operations Specifications (Authorizations and Limitations)
- No. 28 Minimum Equipment List Use
- No. 29 Flight Techniques in Adverse Weather
- No. 30 Flight Planning
- No. 31 Aircraft Flight Manual
- No. 32 Company Operations Manual
- No. 33 Aircraft Avionics Operation
- No. 34 Performance

A/C Ground Training - A/C Systems

- No. 35 Aircraft General Description
- No. 36 Equipment and Furnishings
- No. 37 Emergency Equipment
- No. 38 Powerplant and Propellers
- No. 39 Electrical
- No. 40 Pneumatic
- No. 41 Air Conditioning and Pressurization
- No. 42 Ground Icing Conditions
- No. 43 Ice and Rain Protection

Section 6
Transition

Aircraft Training Manual

- No. 44 Hydraulics
- No. 45 Landing Gear and Brakes
- No. 46 Flight Controls
- No. 47 Fuel Handling and Management
- No. 48 Communications Equipment
- No. 49 Flight Instruments
- No. 50 Navigation Equipment
- No. 51 Autopilot
- No. 52 Warning Systems
- No. 53 Fire and Overheat Protection
- No. 54 Oxygen
- No. 55 Lighting

A/C Ground Training - Systems Integration

- No. 56 Use of Checklists
- No. 57 Cockpit Familiarization
- No. 58 Preflight/Inflight Planning
- No. 59 Use of Weather Radar/CRT's
- No. 60 Navigation/Communications Systems
- No. 61 Autopilot/Flight Director
- No. 85 RVSM Operations

Section 6
Transition

Aircraft Training Manual

CATEGORY: TRANSITION TRAINING
CURRICULUM SEGMENT: Differences Training

Purpose:

The purpose of this curriculum segment is to expose and explain the differences between the company's aircraft of same make i.e. EMB-110, Learjet, Cessna.

Enrollment prerequisite:

A crewmember must have completed all the curriculum segments as listed for the initial new hire curriculum.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 76 Differences Ground Training
No. 77 Differences in Flight Characteristics

Section 6
Transition

Aircraft Training Manual

CATEGORY: TRANSITION TRAINING
CURRICULUM SEGMENT: Emergency Training

Purpose:

This curriculum segment will give the flight crewmember training in emergency situations as required by FAR 135.331.

Enrollment Prerequisites:

The enrollment prerequisites are satisfactory completion of the following: Basic Indoctrination and Ground Training.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio-visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

General Emergency Situation Training

- No. 12 General Emergency Training - Flight Duties and Responsibilities
- No. 13 Crew Coordination and Company Communications
- No. 14 Aircraft Fires
- No. 15 First Aid Equipment
- No. 16 Illness, Injury, and Basic First Aid
- No. 17 Ground Evacuation
- No. 18 Rapid Decompression
- No. 19 Previous Aircraft Accidents/Incidents
- No. 20 Crew Incapacitation
- No. 21 Hijacking and Other Unusual Situations

Emergency Drill Training

- No. 22 Hand-Held Fire Extinguishers
- No. 23 Portable Oxygen Systems
- No. 24 Emergency Exits

Section 6
Transition

Aircraft Training Manual

CATEGORY: TRANSITION TRAINING
CURRICULUM SEGMENT: Flight Training

Purpose:

This section provides flight training to ensure that the crewmember is trained and proficient in the flight tasks that may be required during normal or abnormal aircraft operations.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the initial new hire curriculum.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 62 Aircraft Preflight
No. 63 Surface Operation
No. 64 Takeoff
No. 66 Climb
No. 67 En Route
No. 68 Descent
No. 69 Approaches
No. 70 Landings
No. 71 After Landing
No. 72 Miscellaneous Flight Procedures
No. 74 Normal and Abnormal Procedures
No. 75 Emergency Flight Procedures

Royal Air Freight, Inc.

Section 6
Transition

Aircraft Training Manual

CATEGORY: TRANSITION TRAINING
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

A crewmember must have completed the basic indoctrination curriculum segment.

Instructional Delivery Methods

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff
No. 84 Flight During Icing Conditions

Section 6
Transition

Aircraft Training Manual

CATEGORY: TRANSITION TRAINING
CURRICULUM SEGMENT: Testing and Checking

Purpose:

This section evaluates the training presented and ensures completion of the curriculum with the administration of the required FAA flight checks and evaluations.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the transition curriculum.

Instructional Delivery Methods:

Commercial examination with prompt instructor evaluation of student's performance through written examinations and immediate post flight critique of flight check performance.

Subject Modules:

- No. 78 Competency Check 135.293
- No. 79 Proficiency Check 135.297
- No. 80 Line Check 135.299
- No. 81 Written Examinations



Section 7 -
Upgrade Training

Section 7
Upgrade Training

Aircraft Training Manual

Purpose

Upgrade training - This category of training is for personnel who have been previously trained and qualified as second in command by Royal Air Freight, Inc. and are being assigned as pilot in command to the same aircraft type for which they were previously trained and qualified (same type of aircraft, different duty position). Upgrade only applies to EMB-110 and LEAR JET aircraft.

Upgrade Training -----	JET	TURBINE/ PISTON
Aircraft Ground Training	16:00	8:00
Differences Training	1:00	1:00
Flight Training	6:00	4:00
Emergency Training	4:00	2:00
Special Subjects Training	1:00	1:00
Testing and Checking	2:00	2:00
	-----	-----
	30:00	18:00

Approved  3/25/04
AGL - DETROIT FSDO
Principal Operations
Inspector

Section 7
Upgrade Training

Aircraft Training Manual

CATEGORY: UPGRADE TRAINING
CURRICULUM SEGMENT: Aircraft Ground Training

Purpose:

This curriculum segment will provide the flight crewmember with a detailed and thorough knowledge of the aircraft, its systems, performance and characteristics.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, workshops, drills, and visits to the aircraft.

Subject Modules:

No. 1 Duties and Responsibilities

A/C Ground Training - General Operational Subjects

- No. 7 Meteorology
- No. 8 Navigation
- No. 9 Air Traffic Control Procedures
- No. 25 Flight Control
- No. 26 Weight and Balance - Specific
- No. 27 Operations Specifications (Authorizations and Limitations)
- No. 29 Flight Techniques in Adverse Weather
- No. 30 Flight Planning
- No. 31 Aircraft Flight Manual
- No. 32 Company Operations Manual
- No. 33 Aircraft Avionics Operation
- No. 34 Performance

A/C Ground Training - A/C Systems

- No. 35 Aircraft General Description
- No. 36 Equipment and Furnishings
- No. 37 Emergency Equipment
- No. 38 Powerplant and Propellers
- No. 39 Electrical
- No. 40 Pneumatic
- No. 41 Air Conditioning and Pressurization
- No. 42 Ground Icing Conditions
- No. 43 Ice and Rain Protection

Section 7
Upgrade Training

Aircraft Training Manual

- No. 44 Hydraulics
- No. 45 Landing Gear and Brakes
- No. 46 Flight Controls
- No. 47 Fuel Handling and Management
- No. 48 Communications Equipment
- No. 49 Flight Instruments
- No. 50 Navigation Equipment
- No. 51 Autopilot
- No. 52 Warning Systems
- No. 53 Fire and Overheat Protection
- No. 54 Oxygen
- No. 55 Lighting

A/C Ground Training - Systems Integration

- No. 56 Use of Checklists
- No. 57 Cockpit Familiarization
- No. 58 Preflight/Inflight Planning
- No. 59 Use of Weather Radar/CRT's
- No. 60 Navigation/Communications Systems
- No. 61 Autopilot/Flight Director
- No. 85 RVSM Operations

Section 7
Upgrade Training

Aircraft Training Manual

CATEGORY: UPGRADE TRAINING
CURRICULUM SEGMENT: Differences Training

Purpose:

The purpose of this curriculum segment is to expose and explain the differences between the company's aircraft of same make i.e. EMB-110, Learjet, Cessna.

Enrollment Prerequisite:

The crewmember must have completed Basic Indoctrination Training.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

No. 76 Differences Ground Training
No. 77 Differences in Flight Characteristics

Section 7
Upgrade Training

Aircraft Training Manual

CATEGORY: UPGRADE TRAINING
CURRICULUM SEGMENT: Flight Training

Purpose:

This section provides flight training to ensure that the crewmember is trained and proficient in the flight tasks that may be required during normal or abnormal aircraft operations.

Enrollment Prerequisites:

A crewmember must have completed Basic Indoctrination.

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subject Modules:

- No. 62 Aircraft Preflight
- No. 63 Surface Operation
- No. 64 Takeoff
- No. 66 Climb
- No. 67 En Route
- No. 68 Descent
- No. 69 Approaches
- No. 70 Landings
- No. 71 After Landing
- No. 72 Miscellaneous Flight Procedures
- No. 74 Normal and Abnormal Procedures
- No. 75 Emergency Flight Procedures

Section 7
Transition Training

Aircraft Training Manual

CATEGORY: TRANSITION TRAINING
CURRICULUM SEGMENT: Emergency Training

Purpose:

This curriculum segment will give the flight crewmember training in emergency situations as required by FAR 135.331.

Enrollment Prerequisites:

Completion of the Basic Indoctrination curriculum segment.

Instructional Delivery Methods:

Teaching methods for this segment are lecture, demonstrations, audio-visual presentations, workshops, drills, and visits to the various aircraft.

Subject Modules:

General Emergency Situation Training

- No. 12 General Emergency Training - Flight Duties and Responsibilities
- No. 13 Crew Coordination and Company Communications
- No. 14 Aircraft Fires
- No. 15 First Air Equipment
- No. 16 Illness, Injury, and Basic First Aid
- No. 17 Ground Evacuation
- No. 18 Rapid Decompression
- No. 19 Previous Aircraft Accidents/Incidents
- No. 20 Crew Incapacitation
- No. 21 Hijacking and Other Unusual Situations

Emergency Drill Training

- No. 22 Hand-Held Fire Extinguishers
- No. 23 Portable Oxygen Systems
- No. 24 Emergency Exits

Section 7
Upgrade Training

Aircraft Training Manual

CATEGORY: UPGRADE TRAINING
CURRICULUM SEGMENT: Special Subjects Training

Purpose:

This curriculum segment will present the crewmember with a realistic understanding of the limitations of the equipment being operated. It will offer insights which when combined with personal experience will prepare him to operate safely and efficiently. It will stress the recognition and acceptance of personal limitations and encourage the pilot's self-discipline to stay within those limitations.

Enrollment Prerequisites:

A crewmember must have completed the basic indoctrination curriculum segment.

Instructional Delivery Methods

Lecture
Demonstration

Subject Modules:

No. 65 Lower Than Standard Minimum Takeoff

Section 7
Upgrade Training

Aircraft Training Manual

CATEGORY: UPGRADE TRAINING
CURRICULUM SEGMENT: Testing and Checking

Purpose:

This section evaluates the training presented and ensures completion of the curriculum with the administration of the required FAA flight checks and evaluations.

Enrollment Prerequisites:

A crewmember must have completed all the curriculum segments as listed for the upgrade curriculum.

Instructional Delivery Methods:

Commercial examination with prompt instructor evaluation of student's performance through written examinations and immediate post flight critique of flight check performance.

Subject Modules:

- No. 78 Competency Check 135.293
- No. 79 Proficiency Check 135.297 (PIC only)
- No. 80 Line Check 135.299 (PIC only)
- No. 81 Written Examinations



Section 8 -
Subject Modules

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 1 Duties and Responsibilities

Objectives:

To ensure that the crewmember understands what his/her responsibilities and duties are as they are explained in the operations manual.

Equipment/Training Aids:
Blackboard

Courseware:

Royal Air Freight, Inc. Operations Manual

Instructional Delivery Methods:

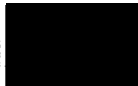
Lecture
Discussion

Subjects:

- A. Company history, organization, and management structure
- B. Operational concepts, policies, and kind of operation
- C. Company Forms, records, and administrative procedures
- D. Employee standards and rules of conduct
- E. Employee compensation, benefits, and contracts.
- F. Authority and responsibilities of duty position.
- G. Company-required equipment
- H. Company manual organization, revisions, and employee responsibilities concerning manuals
- I. Flight Crew Coordination if applicable
- J. Flying/Non-Flying Pilot
 - 1. Use of Checklists
 - 2. Altitude Awareness
 - 3. Use of "Call-outs"

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate Knowledge of Company Policies and employee responsibilities.

Approved  3/25/04
AGL - DETROIT FSDO
Principal Operations
Inspector

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 2 Federal Aviation Regulations and NTSB 830

Objectives:

To insure that the flight crew understand and can correctly comply with the applicable FARs and NTSB 830.

Equipment/Training Aids:

None Required

Courseware:

Federal Aviation Act of 1958, Revised April 1, 1981
Federal Aviation Regulations Parts 1, 61, 91, 119, 135
National Transportation Safety Board Regulation 830

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Flight crewmember certification, training, and qualification requirements
- B. Medical certificates, physical examinations, and fitness for duty requirements
- C. Flight control requirements (dispatch, flight release, or flight-locating)
- D. Flight duty and rest requirements
- E. Recordkeeping requirements
- F. Operational rules in Part 91 and Part 135 and any other applicable regulations
- G. Regulatory requirements for company manuals
- H. Other appropriate regulations such as flightcrew emergency authority, interference with crewmembers, and reporting requirements
- I. National Transportation and Safety Board Part 830

Completion Standards:

The individual shall complete an oral/written examination Corrected to 100% by the instructor to determine adequate knowledge of FAR's 61, 91, 119, 135, and NTSB 830.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 3 Operations Manual, Operating Certificate
and Operations Specifications

Objectives:

Insures that the crewmember has a working knowledge of the
Company Operations Manual with emphasis on the operations
specifications

Equipment/Training Aids:

None Required

Courseware:

Royal Air Freight, Inc. Operations Manual
Royal Air Freight, Inc. Operations Specifications
Federal Aviation Act of 1958

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Regulatory basis in Part 135 and the FA Act of 1958
- B. Definitions, description, and organization of
operations specifications
- C. Limitations and authorizations of operations
specifications
- D. Description of certificate
- E. Description of FAA certificate holding district
office and responsibilities of FAA principal
inspectors
- F. Company Operations Manual

Completion Standards:

The individual shall complete an oral/written examination
corrected to 100% by the instructor to determine adequate
knowledge of the Company Operations Manual, Operating
Certificate, and Operations Specifications.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 4 Company Flight Control Procedures

Objectives:

To insure that the crewmember understands the company's dispatch procedures.

Equipment/Training Aids:

Blackboard

Courseware:

Royal Air Freight, Inc. Operations Manual
FAR 135.79

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Dispatch, flight release, flight locating systems and procedures and flight plans
- B. Individuals with the authority to dispatch aircraft.
- C. Organization, duties, and responsibilities
- D. Weather and NOTAM information
- E. Company communications

Completion Standards:

The individual shall complete an oral/written examination Corrected to 100% by the instructor to determine adequate knowledge of Company dispatch and flight control procedures.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 5 Weight and Balance - General

Objectives:

To insure that the crewmember understands the common methods of determining proper loading, and center of gravity computations.

Equipment/Training Aids:
Blackboard

Courseware:

Appropriate aircraft handbook
AC 91-23A Pilot's Weight and Balance Handbook
FAA P-8740-5 Weight and Balance

Instructional Delivery Methods:
Lecture
Discussion

Subjects:

- A. Definitions -
 - 1. Zero Fuel weight
 - 2. moments
 - 3. inches of datum
 - 4. Percent (%) MAC
- B. General loading procedures, center of gravity computations, weight shifts
- C. Effects of fuel burn and load shifts in flight
- D. Weight and balance forms, load manifests, tables and charts, fuel slips, and other applicable documents
- E. Handling weight and balance changes enroute

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of weight and balance calculations and loading procedures.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 6 Aircraft Performance and Airport Analysis

Objectives:

To insure that the crewmember is capable of using aircraft performance charts in flight planning.

Equipment/Training Aids:
Blackboard

Courseware:
Appropriate Aircraft Handbook

Instructional Delivery Methods:
Lecture
Discussion
Demonstration

Subjects:

- A. Definitions -
 - 1. balanced field
 - 2. obstruction planes
 - 3. maximum endurance
 - 4. Vmc
 - 5. V1
 - 6. Vref
- B. Effects of temperature
- C. General TERPS criteria (obstacle clearance standards)
- D. Airport analysis system as appropriate to the type of operation and family or families of aircraft
- E. Effects of contaminated runways
- F. Stall Speeds
- G. Accelerate/Stop Distance
- H. Aborted Takeoff
- I. Takeoff Distance
- J. Maximum rate of climb
- K. Time, fuel, and distance to climb
- L. Cruise performance
- M. Endurance profile
- N. Landing distance

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of aircraft performance and the use of appropriate charts from the aircraft flight manual. He/She shall also satisfactorily complete sample performance problems as derived from the approved aircraft flight manual.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 7 Meteorology

Objectives:

To insure that the flight crewmember has a working knowledge and understanding of weather as it relates to aviation.

Equipment/Training Aids:

Blackboard
VCR

Courseware:

AC 00-6A Aviation Weather
Company Operations Manual
AC 00-54 Low Level Wind Shear
FAA P-8740-40 Wind Shear
Weather Video

Instructional Delivery Methods:

Lecture
Demonstration

Subjects:

- A. Meteorology
 - 1. Air masses
 - 2. fronts
 - 3. weather systems
 - 4. local weather Phenomena
 - 5. all important weather data for pilots
- B. Weather hazard
 - 1. icing
 - 2. thunderstorms
 - 3. fog and obstructions to vision
- C. Aviation weather observations and reports
- D. Aviation weather forecasts
- E. Weather tables, conversion graphs and maps
- F. Weather facilities
 - 1. NWS
 - 2. FSS
 - 3. AWOS
 - 4. DUATS
- G. Windshear and associated weather
- H. Weather analysis and dispatch considerations
- I. Operation in turbulent air or icing conditions
- J. Automated Weather Observing System
 - 1. Types of AWOS systems
 - 2. Limitations, missing AWOS data
 - 3. FAA requirements
 - 4. AWOS description
 - 5. Communication, methods of obtaining AWOS

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of meteorology.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 8 Navigation

Objectives:

To insure that the flight crew understand and can perform the tasks and duties required when operating VFR and IFR.

Equipment/Training Aids:

Blackboard
VCR

Courseware:

AC 61-27C Instrument Flying Handbook
AC 61-23B Pilot's Handbook of Aeronautical Knowledge
Aircraft Flight Manual
Company Operations Manual
Navigation Video

Instructional Delivery Methods:

Lecture
Demonstration

Subjects:

- A. Definitions - Class I, Class II navigation
- B. Basic navigational instruments
- C. Dead reckoning and pilotage concepts and procedures
- D. Navigational aids
- E. VHF, VLF, and self-contained systems
- F. Publications
- G. Flight plans and procedures for flight location
- H. Fuel requirements
- I. Reporting points and estimates
- J. MEA, MCA, MOCA, and MDA
- K. Departure, enroute, and Approach procedures
- L. Instrument approaches, general
 - 1. VOR
 - 2. ILS
 - 3. NDB
 - 4. LOC
 - 5. Radar and Non-Radar assisted
- M. Holding patterns and holding pattern entries
- N. RNAV
- O. Visual cues before and during descent below DH and MDA
- P. Area approaches, including communications, facilities
- Q. Navigation aids

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of navigation procedures.



Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 9 Air Traffic Control Procedures

Objectives:

To insure that the flight crew understand and can perform the assignments and tasks required of them when operating in and outside of controlled airspace.

Equipment/Training Aids:

Blackboard
VCR

Courseware:

Airman's Information Manual
Company Operations Manual
Air Traffic Control Video

Instructional Delivery Methods:

Lecture
Demonstration

Subjects:

- A. Definitions - precision approaches, airways, and ATIS
- B. Description of airspace
- C. Navigation performance and separation standards
- D. Controller and pilot responsibilities
- E. ATC communications and phraseology
- F. Air traffic flow control
- G. Air Traffic Control Procedures
- H. Airport and departure operations
- I. Enroute procedures
- J. Arrival procedures
- K. Emergency and lost communications procedures
- L. Holding procedures
- M. Approach procedures
- N. Missed approach procedures
- O. Airport Arrival

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of air traffic control procedures.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 10 Enroute and Terminal Area Charting and
Flight Planning

Objectives:

To insure that the crewmember understands and is capable of
using the charts and flight planning material available to
him.

Equipment/Training Aids:

Blackboard
VCR

Courseware:

Appropriate VFR WAC and Sectional Charts
Jeppesen and NOS IFR Charts
Jeppesen J-Aid
Chart Video

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Terminology of charting services - Jeppesen, NOAA
- B. Takeoff minimums, landing minimums, and alternate requirements
- C. General company flight planning procedures
- D. Airport diagrams
- E. Map symbols
- F. Procedures for pilotage
- G. Information available in the J-Aid including Airfield information and Radio Frequencies
- H. Where to obtain weather information

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of enroute and terminal area charting and flight planning, and will satisfactorily complete sample flight planning problems appropriate to the Company route structure.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 11 Concepts of Instrument Procedures

Objectives:

Insures that the crewmember has the knowledge of instrument procedures to operate in an instrument environment safely.

Equipment/Training Aids:

Blackboard
VCR

Courseware:

AC 61-27C Instrument Flying Handbook
Jeppesen J-Aid
The current Airman's Information Manual
Instrument Procedures Video

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Definitions - MDA, HAA, HAT, DH, CAT II ILS, NOPT
- B. Holding patterns, procedure turns
- C. Precision approaches - CAT I, CAT II
- D. Nonprecision approaches
- E. Circling, visual, and contact approaches
- F. Area arrival and departure procedures
- G. Services available to airmen through ATC
- H. Stabilized approaches

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of instrument procedures.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 12 General Emergency Training - Flight
Duties and Responsibilities

Objectives:

To insure that the flight crew understand and can perform
the assignments and procedures required of them by the
operations manual and aircraft flight manual.

Equipment/Training Aids:

Blackboard
Appropriate Aircraft

Courseware:

NTSB 830
FAR 91.3, 135.19
Aircraft Flight Manual
Company Operations Manual

Instructional Delivery Methods:

Lecture
Demonstration

Subjects:

- A. Assignments of the PIC
- B. Assignments of the SIC
- C. Crew Coordination
- D. Pilot in command's emergency authority
- E. Operations Manual Requirements
- F. Preparation for Emergency Landing
- G. Evacuation Assignments
- H. Reporting incidents and accidents

Completion Standards:

The individual shall properly demonstrate the procedures
for his/her assignment. The individual shall complete an
oral/written examination corrected to 100% by the instructor to
determine adequate knowledge of PIC authority in
emergencies and reporting requirements.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 13 Crew Coordination and Company
Communications

Objectives:

To provide the crewmember with company communications
procedures and crew coordination and teamwork.

Equipment/Training Aids:
None Required

Courseware:
Company Operations Manual

Instructional Delivery Methods:
Lecture
Discussion

Subjects:

- A. Cabin crew notification procedures
- B. Ground agency notification procedures (FAA Airport
Authority)
- C. Company communication procedures
- D. Seat Dependant Tasks (Flying Pilot/Non-flying Pilot)
- E. Crew Pairing
- F. Crew callouts during IFR/VFR operations

Completion Standards:

The individual shall complete an oral/written examination
corrected to 100% by the instructor to determine adequate
knowledge of crew coordination and communication.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 14 Aircraft Fires

Objectives:

To provide the crewmember with a methods and appropriate procedures for dealing with aircraft fires

Equipment/Training Aids:

Fire Extinguisher

Courseware:

AC 20-42C Hand Fire Extinguishers for Use in Aircraft

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. Principals of combustion and classes of fire
- B. Toxic fumes and chemical irritants
- C. Location and use of appropriate hand-held extinguishers
- D. Smoke masks and/or goggles

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of aircraft fires and appropriate procedures.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 15 First Aid Equipment

Objectives:

To familiarize the crewmember with contents and use of the aircraft first aid kit.

Equipment/Training Aids:

First Aid Kit

Courseware:

AC 120-44 Air Carrier First Aid Programs

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. Location and contents of first aid kit
- B. Requirements for first aid kit integrity
- C. Use of individual items

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of first aid equipment.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 16 Illness, Injury, and Basic First Aid

Objectives:

To train the flight crewmember in acceptable first aid techniques.

Equipment/Training Aids:

First Aid Kit

Courseware:

First Aid Kits
First Aid Books

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subjects:

- A. Introduction to First Aid
- B. Seeking medical assistance
- C. Pregnancy
- D. Principles of CPR
- E. Respiratory Emergencies
- F. Heart Attack and stroke
- G. Direct pressure, elevation and pressure points to control bleeding
- H. Ear and sinus blocks
- I. Tourniquets
- J. Wounds
- K. Burns
- L. Bandaging
- M. Head injuries and internal Injuries
- N. Forms of Artificial Respiration
- O. Bleeding Control and improvising in Various Environments
- P. Treatment of Fractures, Dislocation, and Sprains
- Q. Shock and Mandatory Actions
- R. Infections, Treatment and Prevention

Completion Standards:

The individual shall properly demonstrate the procedures for first aid techniques discussed. The individual shall an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of Illness, Injury, and Basic First Aid.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 17 Ground Evacuation

Objectives:

To insure that the crewmember is familiar with the procedures for passenger and crew evacuation.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Flight Manual
AC 120-32 Air Transportation of Handicapped Persons
Passenger Briefing Cards

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Aircraft configuration
- B. Directing passenger flow
- C. Blocked or jammed exit procedures.
- D. Fuel spills and other ground hazards
- E. Handicapped persons

Completion Standards:

The individual shall complete an oral/written examination completed to 100% by the instructor to determine adequate knowledge of Ground Evacuation.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 18 Rapid Decompression

Objectives:

To provide the crewmember with procedures and methods for dealing with rapid decompression.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual
AC 61-107 Operations Above 25,000 feet

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Respiration
- B. Hypoxia, hypothermia, hyperventilation
- C. Time of useful consciousness
- D. Gas expansion/bubble formation
- E. Physical phenomena and actual incidents
- F. Emergency Descent
- G. High Altitude Operations

Completion Standards:

The individual shall complete an oral/written examination completed to 100% by the instructor to determine adequate knowledge of rapid decompression.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 19 Previous Aircraft Accidents/Incidents

Objectives:

To provide the crewmember with an awareness of the factors leading to and the common causes of aircraft accidents.

Equipment/Training Aids:

None Required

Courseware:

NTSB 830

AC 00-46C Aviation Safety Reporting Program

AC 90-48C Pilot's Role in Collision Avoidance

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

A. NTSB accident report reviews

B. Human factors/considerations

C. NASA reporting system

D. Previous Company incidents/accidents

E. Casual factors and preventive measures

Completion Standards:

The individual shall complete an oral/written examination completed to 100% by instructor to determine adequate knowledge of the factors leading to and the common causes of aircraft accidents.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 20 Crew Incapacitation

Objectives:

To provide the flight crewmember guidance in dealing with abnormal situations involving crewmember incapacitation aboard the aircraft inflight.

Equipment/Training Aids:

None Required

Courseware:

Company Operations Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Company procedures
- B. Reporting requirements
- C. Interference with crewmembers

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of crew incapacitation and reporting requirements.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 21 Hijacking and Other Unusual Situations

Objectives:

To present company and FAA procedures for hijack and bomb threat.

Equipment/Training Aids:

None Required

Courseware:

Airman's Information Manual
Company Operations Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Hijack procedures
- B. Bomb threat procedures
- C. Security coordinator responsibilities
- D. Inflight intercept procedures

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of hijack code and procedures.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 22 Hand-Held Fire Extinguishers

Objectives:

To familiarize the crewmember with the hand-held fire extinguishing equipment used aboard company aircraft.

Equipment/Training Aids:

Fire Extinguisher of the type used in each Aircraft

Courseware:

AC 20-42C Hand Fire Extinguishers for Use in Aircraft

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Hands-on as required

Subjects:

- A. Inspection tags, dates and proper charge levels
- B. Removal and stowage of extinguishers
- C. Actual discharge of each type of extinguisher
- D. Maintenance procedures
- E. Classes of fires

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of fires and proper use of extinguishers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 23 Portable Oxygen Systems

Objectives:

To insure that the crewmember is familiar with the use of company portable oxygen equipment.

Equipment/Training Aids:

Aircraft
Oxygen Masks

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion
Demonstration

Subjects:

- A. Inspection tags, and pressures
- B. Removal and stowage of oxygen bottles
- C. Actual operation of each type of bottle and each type of mask

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of portable oxygen systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 24 Emergency Exits

Objectives:

To insure that the crewmember is familiar with the aircraft emergency exits.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Flight Manual
Passenger Briefing Cards

Instructional Delivery Methods:

Lecture
Discussion
Demonstration

Subjects:

A. Actual operation (open and close) of each exit in the normal and emergency modes.

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor and satisfactorily the instructor and satisfactorily demonstrate the actual operation of each exit in both normal and emergency mode.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 25 Flight Control

Objectives:

To insure that the crewmember understands the company's
dispatch and flight locating procedures.

Equipment/Training Aids:

None Required

Courseware:

Company Operations Manual
FAR 135.79

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Dispatch procedures
- B. Flight release
- C. Flight locating procedures

Completion Standards:

The individual shall complete an oral/written examination
corrected to 100% by the instructor to determine adequate
knowledge of Company dispatch and flight locating procedures.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 26 Weight and Balance - Specific

Objectives:

To provide the crewmember with a working knowledge of the aircraft weight and balance procedures and company weight and balance computation methods.

Equipment/Training Aids:

Blackboard

Courseware:

Aircraft Flight Manual
AC 91-23A Pilot's Weight and Balance Handbook
FAA P-8740-5 Weight and Balance

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Weight and balance specific to A/C
- B. Company weight and balance forms

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft weight and balance procedures and company weight and balance computation methods. He/She will also satisfactorily complete a sample weight and balance/load manifest for a typical flight.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 27 Operations Specifications
(Authorizations and Limitations)

Objectives:

To familiarize the crewmember with authorizations and limitations in the Company Operations Specifications pertaining to the aircraft.

Equipment/Training Aids:

None Required

Courseware:

Company Operations Specifications

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

A. Authorizations and limitations specific to aircraft.

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by instructor to determine adequate knowledge of the Company Operations Specifications.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 28 Minimum Equipment List Use

Objectives:

To familiarize the crewmember with the aircraft Minimum Equipment List and ensure its proper use.

Equipment/Training Aids:

None Required

Courseware:

Aircraft Flight Manual
Company Operations Specifications
Aircraft Minimum Equipment List

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. General purpose of the Minimum Equipment List.
- B. Determining if the MEL is current.
- C. Highlights of recent changes.
- D. Where and how to have (O) & (M) procedures completed.
- E. Where and how to log inoperative equipment.
- F. Required placards when equipment is inoperative.
- G. How to look up deferred equipment.
- H. Pilot securing procedure for Thrust Reverse (Lear only)

Completion Standards:

The individual shall complete an oral examination given by the instructor to determine adequate knowledge of the use of the minimum equipment list and the procedures for its use.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 29 Flight Techniques in Adverse Weather

Objectives:

To prepare the pilot for an encounter with any of the following flight hazards.

Equipment/Training Aids:

Blackboard
VCR

Courseware:

AC 00-6A	Aviation Weather
AC 00-45C	Aviation Weather Services
AC 00-30A	Rules of Thumb for Avoiding or Minimizing Encounters with Clear Air Turbulence
FAA P-8740-12	Thunderstorms - Don't Flirt - Skirt 'Em
AC 00-54	Low Level Wind Shear
FAA P-8740-40	Wind Shear
Weather Video	

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Vertigo and spatial disorientation
 - 1. Senses used for maintaining equilibrium and orientation-inner ear, postural, sight. Conflict between sight and other senses- false sensations from the inner ear, centrifugal force and gravity, postural sense.
 - 2. Visual illusion under IFR conditions-in and out of clouds, tilted cloud layers, lights on the horizon appearing higher or lower, anti-collision lights.
 - 3. Disorientation-conflict between flight instruments and physical senses, examples of maneuvers and situations.
 - 4. Solutions-knowledge-What are the false senses?, training-learning to disregard the false senses, learning to rely entirely on instruments, learning simple precautions. proficiency-practice and experience. ability to transition rapidly from VFR to IFR. Whiteouts/depth perception

Section 8
Subject Modules

Aircraft Training Manual

5. Definition-optical phenomenon, lack of normal color contrasts perceptible to the human eye, a total absence of shadow, blowing snow.
 6. Problem-no horizon, no definition, loss of depth perception.
 7. Solution-Judgment, Instrument proficiency, ability to overcome vertigo
- B. Ice fog
1. Definition/Description/Causes
 2. Problems-no horizontal visibility, landing in reduced visibility, runway alignment, "ducking under" visual illusion, MDA or DH to continue or missed approach and after acquiring the runway.
- C. Icing and frost
1. Problems-detrimental aerodynamic effects, takeoff and landing, possible control flutter, overnight snow, ice or frost accumulation.
 2. Solutions-wing covers, procedures for removal of snow, frost or ice, prevention, inflight procedures (RPM and altitude changes), radio antennae icing, windshield ice, pitot-static blockage, operating procedures for other deice equipment.
- D. Turbulence and wind shear
1. Recognizing and Avoiding Severe Weather Situations.
 2. Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear.
 3. Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other potentially hazardous meteorological conditions.
 4. Causes-thunderstorms, fronts, topographical flow, sea breeze fronts (temperature over land/water), mountain waves.
 5. Detection-surface analysis, millibar, radar return charts, PIPREPS, analyze the weather continuously in flight, aircraft performance in wind shear (energy trade-altitude for speed or vice versa and carrying extra speed).
 6. Procedures for coping with wind shear-takeoff, maximum performance, prompt action, awareness.

- E. Operation in heavy precipitation
 - 1. Operation of wipers
 - 2. Reduction of electrical load
 - 3. Use of pitot heat
 - 4. Reduction of forward visibility
- F. Low visibility
 - 1. Depth perception
 - 2. Fly the glideslope to the runway
 - 3. Forward vs. downward visibility
- G. Contaminated runways
 - 1. Hydroplaning factors
 - 2. Snow or ice on the runway
 - 3. Performance difference on wet runway

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of flight techniques in adverse weather.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 30 Flight Planning

Objectives:

To provide the crewmember with the knowledge and a format for accomplishing all the appropriate preflight items.

Equipment/Training Aids:

Aircraft flight manual
Approach plates
Enroute Charts
Weather information

Courseware:

Aircraft flight manual
Approach plates
Enroute Charts
Weather information

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Use of flight plan and load manifest
- B. Weight and balance data for flight
- C. Airport data for takeoff and landing, enroute
- D. Fuel requirements
- E. Procurement of weather for planning purposes

Completion Standards:

The individual will be able to complete all items given by the instructor to determine adequate knowledge of flight planning.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 31 Aircraft Flight Manual

Objectives:

To provide the crewmember with all information on the aircraft such as preflight, normal operations, abnormal operations, emergency operations, limitations and descriptions of all aircraft systems.

Equipment/Training Aids:

Aircraft flight manual

Courseware:

Aircraft flight manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Preflight Inspection
- B. Use of Checklists
- C. Aircraft limitations
- D. Emergency Procedures
- E. Normal and Abnormal Operations
- F. Performance Charts

Completion Standards:

The individual shall complete an oral examination given by the instructor to determine adequate knowledge of the aircraft flight manual.



Section 8

Aircraft Training Manual

Subject Modules

Subject Module: No. 32 Company Operations Manual

Objectives:

To provide the crewmember with the knowledge of the everyday operation of the Company and where to find the information needed appropriate to a given situation.

Equipment/Training Aids:

Company Operations Manual

Courseware:

Company Operations Manual

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. Company Structure
- B. Operations
- C. Flight following
- D. Forms and required paperwork

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the Company Operations Manual.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 33 Aircraft Avionics Operations

Objectives:

To insure that the crewmember understands procedures for operating specific aircraft communications and navigation equipment.

Equipment/Training Aids:

None Required

Courseware:

Aircraft Flight Manual
Company Operations Manual
Airman's Information Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Specific Company communications requirements
- B. ATC clearance requirements
- C. Area departure and arrival requirements
- D. En route requirements
- E. Approach and landing requirements

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the procedures for operating specific aircraft communications and navigation equipment.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 34 Performance

Objectives:

To provide the crewmember with a working knowledge of the aircraft performance tables and charts.

Equipment/Training Aids:

Blackboard

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. The use of charts, tables, tabulated data and other related manual information
- B. Normal, abnormal, and emergency performance problems.
- C. Meteorological and weight-limiting performance factors - Temperature, pressure, contaminated runways, precipitation, climb/runway limits.
- D. Runway limitations for takeoff and landing.
- E. Inoperative equipment performance limiting factors. - Minimum Equipment List.
- F. Special operational conditions - unpaved runways, high altitude airports.

Completion Standards:

The individual shall complete an oral examination given by the instructor to determine adequate knowledge of the aircraft performance tables and charts, and satisfactorily complete sample performance charts, tables, and graphs for normal, abnormal and emergency operations.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 35 Aircraft General Description

Objectives:

To provide the crewmember with a general description of the aircraft.

Equipment/Training Aids:
Blackboard

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Dimensions
- B. Turning radius
- C. Panel layouts
- D. Cockpit and cabin configurations
- E. Other major systems and components
- F. Autopilot and/or Flight Director

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 36 Equipment and Furnishings

Objectives:

To familiarize the crewmember with aircraft equipment and furnishings.

Equipment/Training Aids:
Aircraft

Courseware:

Aircraft Flight Manual
Passenger Briefing Cards

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Aircraft exits
- B. Cargo areas
- C. Crewmember and passenger seats
- D. Bulkheads
- E. Seating and/or cargo configurations
- F. Non-emergency equipment and furnishings

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft exits, seating, and cargo configuration.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 37 Emergency Equipment

Objectives:

To familiarize the crewmember with the emergency equipment on the aircraft.

Equipment/Training Aids:

Aircraft
Emergency Equipment from Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion
Demonstration

Subjects:

- A. Type, location, and purpose of each item of emergency equipment -
 - 1. fire and oxygen bottles
 - 2. first aid kits
 - 3. emergency exits and lights
 - 4. flotation/survival equipment (if necessary)
- B. Each item of egress
 - 1. escape straps or handles
 - 2. hatches
 - 3. ladders or moveable stairs

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft emergency equipment.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 38 Powerplant and Propellers

Objectives:

To provide the crewmember with a knowledge of the aircraft powerplant.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. basic engine description
- B. engine thrust/torque, HP ratings
- C. engine components
 - 1. accessory drives
 - 2. ignition
 - 3. oil
 - 4. fuel control
 - 5. hydraulic
 - 6. bleed air features
- D. Propeller and related systems

Completion Standards:

The individual shall complete an oral examination given by the instructor to determine adequate knowledge of the aircraft powerplants and Propellers.

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Section 8

Aircraft Training Manual

Subject Modules

Subject Module: No. 39 Electrical

Objectives:

To familiarize the crewmember with the aircraft
Electrical system.

Equipment/Training Aids:

Blackboard
Aircraft
Manufactures Manuals

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Sources of aircraft power
 - 1. engine-driven generators
 - 2. external power
 - 3. AC power
- B. Electrical buses
- C. Circuit breakers
 - 1. Resetting tripped breakers
 - A. Safety concerns
 - B. Manufactures recommendations
 - C. Policies and procedures
- D. Fuses
- E. Battery
- F. Standby power systems

Completion Standards:

The individual shall complete an oral examination given by
the instructor to determine adequate knowledge of the
aircraft electrical system.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 40 Pneumatic

Objectives:

To familiarize the crewmember with the pneumatic systems on the aircraft.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Vacuum system - engine driven pumps
- B. Gyros, surface deice

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the pneumatic system.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 41 Air Conditioning and Pressurization

Objectives:

To provide the crewmember with a working knowledge of the aircraft Air Conditioning and Pressurization systems.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Air conditioning -
 - 1. Heaters
 - 2. Fans and other environmental control devices
 - 3. Air conditioning packs
- B. Pressurization -
 - 1. Outflow and negative pressure relief valves
 - 2. automatic, standby, and manual pressurization controls and annunciators.

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft Air Conditioning and Pressurization systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 42 Ground Icing Conditions

Objectives:

To insure that the crewmember is familiar with ground icing conditions and company any regulatory procedures for airplane operations when conditions are such that frost, ice, or snow may expected to adhere to the airplane.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Flight Manual
FSAT - FAA-Approved Deicing Program Updates
(SAE-Approved Holdover Time Tables)

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Ground Icing Conditions -
 - 1. Deicing/anti-icing Definitions
 - 2. Deicing/anti-icing fluids and holdover times
 - 3. Inspection and check procedures and responsibilities
 - 4. Crew communications
 - 5. Airplane surface contamination
 - 6. Critical area identification
 - a. Adverse effects of contamination on performance and flight characteristics.
 - b. Types and characteristics of deicing/anti-icing fluids
 - 7. Cold weather preflight inspection procedures
 - 8. Techniques for recognizing contamination on the airplane

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of airplane operations in ground icing conditions.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 43 Ice and Rain Protection

Objectives:

To insure that the crewmember is familiar with the aircraft anti-ice/deicing systems.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Flight Manual
AC 20-73 Aircraft Ice Protection

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Anti-icing/deicing systems
- B. In flight ice removal from or prevention of formation on -
 - 1. airfoils
 - 2. flight controls
 - 3. engines
 - 4. pitot-static probes
 - 5. fluid outlets
 - 6. cockpit windows
 - 7. aircraft structures
- C. System components
 - 1. pneumatic/electrical valves
 - 2. sensors
 - 3. ducts
 - 4. electrical elements
 - 5. pneumatic devices

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate adequate knowledge of the aircraft anti-ice/deicing systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 44 Hydraulics

Objectives:

To insure that the crewmember is familiar with the aircraft hydraulic systems.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Brake systems, reservoirs, fluids
- B. Hydraulic reservoirs
- C. Pumps
- D. Accumulators
- E. Routing hydraulic fluid through filters, check valves, interconnects, and associated actuators and hydraulically-operated components.

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft hydraulic systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 46 Flight Controls

Objectives:

To familiarize the crewmember with aircraft flight control systems.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Primary controls
 - 1. ailerons
 - 1a. Spoilerons
 - 2. rudder
 - 3. elevator
- B. Secondary controls
 - 1. Spoilers
 - 2. flaps
 - 3. trim
 - 4. damping mechanisms

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the flight control systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 47 Fuel Handling and Management

Objectives:

To provide the pilot with an understanding and awareness of the following fuel management considerations.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual/Owners Manual
AC 20-43C Aircraft Fuel Control
FAA P-8740-35A All About Fuel

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Location and capacity of fuel tanks
- B. Engine driven pumps
- C. Boost pumps
- D. System valves and crossfeeds
- E. Quantity indicators
- F. Drains
- G. Fuel contamination (liquids and solids).
 - 1. Transferring and storage introduce most contaminants into fuel
- H. Filtration and separation
- I. Refueling in general-contamination prevention
- J. Fuel management-knowledge of fuel systems
- K. Fuel consumption and cruise control
- L. Fuel identifications
 - 1. Fuel Grades
 - 2. Alternative Fuels
 - 3. Fuel Additives

Completion Standards:

The individual shall complete an oral examination given by the instructor to determine adequate knowledge of fuel handling and management in the aircraft.



Subject Module: No. 48 Communications Equipment

Objectives:

To familiarize the crewmember with the communications equipment on company aircraft.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. VHF/HF radios
- B. Audio panels
- C. inflight interphone and passenger address systems.
- D. Voice recorder

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the communications equipment on Company aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 49 Flight Instruments

Objectives:

To insure that the crewmember is familiar with the flight instruments and panel arrangement on the aircraft.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Overview of panel arrangement
- B. Electrical and pitot-static sources
- C. Alternate sources for flight instruments
- D. Attitude indicator
- E. Directional gyro and Magnetic compass
- F. Airspeed indicator
- G. Vertical speed indicator
- H. Altimeter
- I. Standby flight instruments

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the flight instruments and panel arrangement on the aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 50 Navigation Equipment

Objectives:

To familiarize the crewmember with the navigation equipment on company aircraft.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Flight director
- B. Horizontal situation indicator
- C. Radio magnetic indicator
- D. ADF
- E. VOR
- F. RNAV
- G. Marker beacon
- H. DME
- I. Transponders
- J. Radio altimeter
- K. Weather Radar/Stormscopes
- L. GPS

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the navigation equipment on Company aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 51 Autopilot

Objectives:

To insure that the crewmember is familiar with the autopilot system on the aircraft.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Autopilot
- B. Interface to Flight director
- C. Automatic approach tracking
- D. Coupled approach

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the autopilot system on the aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 52 Warning Systems

Objectives:

To provide the crewmember with a familiarity with the aircraft warning devices and systems.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Aural and visual warning systems
 - 1. Stall warning
 - 2. Landing gear warning
- B. Warning and caution annunciator systems

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft warning devices and systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 53 Fire and Overheat Protection

Objectives:

To provide the crewmember with a knowledge of the fire and overheat protection systems.

Equipment/Training Aids:

Blackboard

Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. Fire and overheat sensors, loops, and modules.
- B. Use of fire handles
- C. Automatic extinguishing systems
- D. Fire protection for -
 - 1. Cargo bay/wheel well
 - 2. cockpit
 - 3. cabin

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the fire and overheat protection systems.

Section 8

Aircraft Training Manual

Subject Modules

Subject Module: No. 54 Oxygen

Objectives:

To familiarize the crewmember with the aircraft oxygen system.

Equipment/Training Aids:

Aircraft
Oxygen Mask

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Crew oxygen
- B. Passenger oxygen
- C. Portable Oxygen
- D. Sources of Oxygen (gaseous or solid)
- E. Flow and distribution networks
- F. Automatic deployment systems
- G. Regulators
- H. Pressure levels
- I. Gauges
- J. Servicing

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft oxygen system.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 55 Lighting

Objectives:

To familiarize the crewmember with the aircraft lighting systems.

Equipment/Training Aids:

Blackboard
Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Cockpit Lighting
- B. Cabin lighting
- C. External lighting
- D. Power sources
- E. Switch positions
- F. Spare light bulb locations

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft lighting systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 56 Use of Checklists

Objectives:

To insure that the crewmember is familiar with the use of all checklists used on the aircraft.

Equipment/Training Aids:
Aircraft

Courseware:

Aircraft Flight Manual
Aircraft Checklists

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Safety checks
- B. Cockpit preparation
- C. Checklist callouts and responses
- D. Checklist sequence

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the use of all checklists used on the aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 57 Cockpit Familiarization

Objectives:

To familiarize the crewmember with aircraft cockpit and crew stations.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. Activation of aircraft system controls and switches
- B. Normal, abnormal and emergency switches and control positions
- C. Annunciator and lights
- D. Caution and warning systems

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft cockpit and crew stations.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 58 Preflight/Inflight Planning

Objectives:

To insure that the crewmember is proficient in preflight and inflight planning procedures and requirements.

Equipment/Training Aids:

Blackboard

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. Performance limitations
- B. Required fuel loads
- C. Weather planning - Lower than standard takeoff minimums or alternate requirements.
- D. Inflight Situations

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of preflight planning procedures and requirements.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 59 Use of Weather Radar/Stormscopes

Objectives:

To provide the crewmember with a working knowledge of the Radar system and CRT Displays.

Equipment/Training Aids:

Aircraft Equipped with Radar

Courseware:

Aircraft Flight Manual

Radar Manufacturer's Operators Manual

AC 20-68B Recommended Radiation Safety Precautions for
Airborne Weather Radar

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

A. Use of weather Radar

B. Use of stormscopes

C. Vertical profile

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the weather radar in the aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 60 Navigation/Communications Systems

Objectives:

To provide the crewmember with a working knowledge of the aircraft navigation systems.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture

Discussion

Demonstration

Subjects:

- A. Preflight and operation of applicable receivers
- B. Onboard navigation systems
- C. Flight plan information input and retrieval
- D. Preflight and operation of communications equipment

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft navigation systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 61 Autopilot/Flight Director

Objectives:

To provide the crewmember with a working knowledge of the aircraft autopilot system.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture

Discussion

Subjects:

- A. Autopilot
- B. Flight director
- C. Normal and abnormal indications
- D. Use of autopilot during in-flight icing conditions

Completion Standards:

The individual shall complete an oral/written examination corrected to 100% by the instructor to determine adequate knowledge of the aircraft autopilot system.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 62 Aircraft Preflight

Objectives:

To ensure that the pilot understands and is able to properly perform the tasks required of him during the preflight period up to but not including engine start.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Checklist

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Visual Inspection
- B. Pretaxi Procedures
 - 1. Equipment familiarize
 - 2. Checklist use
- C. Performance Limitations

Completion Standards:

The individual shall perform a correct preflight inspection, show the location of appropriate paperwork, demonstrate the proper use of the checklist, perform the correct prestart.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 63 Surface Operation

Objectives:

To ensure that the pilot understands and is able to properly perform the tasks required of him during the engine start and taxi period up to but not including takeoff.

Equipment/Training Aids:
Aircraft

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
AC 91-73 Single pilot procedures during taxi operations
AC 120-74a Flightcrew procedures during taxi operations

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Cockpit management
- B. Securing Cargo
- C. Starting
- D. Taxi
- E. Pretakeoff checks
- F. Airport ground operational safety

Completion Standards:

The individual shall perform a correct prestart checks, pretaxi checks, demonstrate the proper use of the checklist, perform the correct pretaxi procedures and show a knowledge of powerplant checks and radio checks.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 64 Takeoff

Objectives:

To ensure that the pilot is capable of performing the listed takeoff maneuvers safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers.

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects: Turbine/Piston:

- A. Normal
- B. Crosswind
- C. Short field
- D. Vmc Demonstration and recovery
- E. Powerplant failure before Vr (Rejected takeoff)
- F. Powerplant failure after Vr

Jets:

- A. Normal
- B. Crosswind
- C. Rejected
- D. Power failure at or after V1
- E. Powerplant failure during second segment

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 65 Lower Than Standard Minimum Takeoff

Objectives:

To ensure that the pilot is capable of performing the listed takeoff maneuvers safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-27C Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers
Company Operations Specifications - Paragraph C57, C79

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Taxiing in a low visibility environment
- B. Preventing runway incursions
- C. Critical areas
- D. Crew coordination and planning
- E. Runway and lighting requirements
- F. Required ground-based visual aids (i.e. stop bars, taxiholding position lights)
- G. Required ground-based electronic aids (i.e. ILS transmissometers)
- H. Determination of takeoff alternate airports
- I. Rejected takeoffs in a low visibility environment
- J. Engine failure at or below Vmc or V1

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 66 Climb

Objectives:

To ensure that the pilot is capable of performing the listed climb maneuvers safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Normal
- B. One-engine Inoperative

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 67 En Route

Objectives:

To ensure that the pilot is capable of performing the listed enroute maneuvers safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Steep Turns
- B. Approaches to Stalls
 - 1. Takeoff Configuration
 - 2. En Route Configuration
 - 3. Landing Configuration
- C. Slow Speed Handling Characteristics
 - 1. Two engine
 - 2. One engine
- D. Powerplant Shutdown and Restart
- E. High Speed Handling Characteristics

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

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Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 68 Descent

Objectives:

To ensure that the pilot is capable of performing the listed descent maneuvers safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

A. Normal
B. Maximum Rate

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 69 Approaches

Objectives:

To ensure that the pilot is capable of performing the listed approach maneuvers safely and effectively. These maneuvers should be performed with both full and partial panel.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
SIDs, STAR, Approach and Enroute Charts
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. VFR Procedures
 - 1. Normal
 - 2. With Loss of Power on one Side
 - 3. With Flap Malfunction
- B. IFR Precision Approaches
 - 1. ILS - Normal
 - 2. ILS - One-Engine Inoperative
- C. IFR Nonprecision Approaches
 - 1. NDB - Normal
 - 2. VOR - Normal
 - 3. NDB/VOR - One-Engine Inoperative
 - 4. LOC Backcourse Procedures
 - 5. SDF/LDA Procedures
 - 6. GPS Procedures
- D. Circling Approach
- E. Missed Approaches
 - 1. From Precision Approach
 - 2. From Nonprecision Approach
 - 3. With a Powerplant Failure

Section 8
Subject Modules

Aircraft Training Manual

Note: Approach Training Procedures -

Nonprecision Approaches:

- o Flight training on VOR approaches satisfies flight training requirements for LOC, SDF and LDA approaches.
- o Flight training on VOR/DME approaches satisfies flight training requirements for LOC/DME and LDA/DME approaches
- o Flight training on NDB approaches is required if NDB or NDB/DME approaches are authorized. However, flight training on VOR/DME satisfies the DME flight training requirements for NDB/DME approaches
- o Flight training on LOC back course approaches is required if the LOC back course approach is authorized.
- o Ground training is sufficient for ASR approaches.

Precision Approaches:

- o Flight training is required on ILS approaches. Flight training on the use of NDB and/or DME in connection with nonprecision approaches satisfies the training requirements for NDB/ILS or ILS/DME approaches.

Circling Maneuvers:

- o Flight training on the circling maneuver is required.
- o Ground training on the circling maneuver must include instruction on procedures to be used to ensure that missed approaches executed during a circling maneuver will be conducted safely.

Visual Approaches:

- o Ground training must include instruction on the requirements specified in the operations specifications for the acceptance of visual approaches.

Contact Approaches:

- o Because it is difficult to realistically simulate the conditions encountered during a contact approach, flight training on this procedure may not be productive. Ground training on contact approach procedures is required for an operator electing to conduct contact approaches.

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 70 Landings

Objectives:

To ensure that the pilot is capable of performing the listed landing maneuvers safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-27C Instrument Flying Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Normal
- B. With Pitch Mistrim
- C. From Precision Instrument Approach
 - 1. One Engine
 - 2. Two Engine
- D. With Loss of Power on One Side
- E. With Flap Malfunction
- F. Crosswind
- G. Short Field

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 71 After Landing

Objectives:

To ensure that the pilot is capable of performing the listed after landing procedures safely and effectively.

Equipment/Training Aids:

Aircraft

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Parking
- B. Emergency Evacuation
- C. Engine Shutdown

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 72 Miscellaneous Flight Procedures

Objectives:

To ensure that the pilot is capable of performing the listed procedures safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
AC 00-54 Low Level Wind Shear
FAA P-8740-40 Wind Shear

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Holding
- B. Ice Accumulation on Airframe
- C. Air Hazard Avoidance
- D. Windshear/Microburst

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Royal Air Freight, Inc.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 73 Autopilot in Place of Second in Command

Objectives:

To ensure that the pilot is capable of performing the listed procedures safely and effectively.

Equipment/Training Aids:

Aircraft with autopilot
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. The following instrument procedures should be demonstrated with and without the use of the autopilot.
1. Airport departures
 2. Enroute operations
 3. Holding
 4. Coupled and uncoupled approaches
 5. Missed approaches
 6. Minimum altitude for use
 7. Minimum altitude loss during autopilot malfunction

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual- Flight Maneuvers.

Royal Air Freight, Inc.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 74 Normal and Abnormal Procedures

Objectives:

To ensure that the pilot is capable of performing and dealing with the listed normal and abnormal procedures safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Pneumatic/Pressurization
- B. Air Conditioning
- C. Fuel and Oil
- D. Electrical
- E. Hydraulic
- F. Flight Controls
- G. Anti-icing and Deicing Systems
- H. Autopilot
- I. Automatic Approach and Landing Aids
- J. Stall Warning Devices, Stall Avoidance Devices and Stability Augmentation Systems
- K. Airborne Weather Radar
- L. Flight Instrument System Malfunction
- M. Communication Equipment
- N. Navigation Systems

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 75 Emergency Flight Procedures

Objectives:

To ensure that the pilot is capable of performing and dealing with the listed Emergency procedures safely and effectively.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

Aircraft Operating Handbook or Pilot Operating Handbook
AC 61-21A Flight Training Handbook
Aircraft Training Manual - Flight Maneuvers

Instructional Delivery Methods:

Lecture
Discussion
Demonstration
Drill

Subjects:

- A. Aircraft Fires
- B. Smoke Control
- C. Powerplant Malfunctions
- D. Electrical Systems
- E. Hydraulic Systems
- F. Pneumatic Systems
- G. Flight Control Systems Malfunction
- H. Autopilot and/or Flight Director
- I. Landing Gear and Flap Malfunction
- J. Air Hazard Avoidance
- K. Windshear/Microburst

Completion Standards:

The individual shall demonstrate the procedures listed according to the guidelines established in the aircraft operating handbook and the FAA Practical Test Standards appropriate for the certificates and ratings held by the student and Aircraft Training Manual - Flight Maneuvers.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 76 Differences Ground Training

Objectives:

To clearly explain to the pilot the differences between each of the company aircraft of same make i.e. EMB-110, Learjet, Cessna.

Equipment/Training Aids:

Blackboard
Each Different Aircraft

Courseware:

Each Aircraft Handbook
Aircraft Maintenance Manuals

Instructional Delivery Methods:

Lecture
Demonstration

Subjects:

- A. Fuel system
- B. Electrical system
- C. Trim
- D. Cabin Features
- E. Limitations
- F. Hydraulic
- G. Pneumatic
- H. Vacuum
- I. Performance
- J. Weight and Balance
- K. Fire Protection
- L. Ice Protection
- M. Pressurization
- N. Avionics

Completion Standards:

Each crewmember shall complete an oral/written examination corrected to 100% by the instructor on the differences among the aircraft.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 77 Differences in Flight Characteristics

Objectives:

To clearly demonstrate to the pilot the differences in flight between each of the company aircraft of same make i.e. EMB-110, Learjet, Cessna.

Equipment/Training Aids:

Blackboard
Each Different Aircraft

Courseware:

Each Aircraft Handbook
Aircraft Flight Manuals

Instructional Delivery Methods:

Lecture
Demonstration
Drill

Subjects:

- A. Fuel system operation
- B. Electrical system
- C. Trim operation
- D. Limitations
- E. Hydraulic
- F. Pneumatic
- G. Vacuum
- H. Performance
- I. Weight and Balance
- J. Fire Protection
- K. Ice Protection
- L. Pressurization
- M. Avionics

Completion Standards:

Each crewmember shall demonstrate the correct normal and abnormal operation of each of the listed different appliances or systems.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 78 Competency Check 135.293

Objectives:

To ensure that the pilot meets minimum flight and ground performance standards.

Equipment/Training Aids:
Aircraft

Courseware:

14 CFR Part 135

Instructional Delivery Methods:

Demonstration
Discussion

Subjects:

- A. 14 CFR Part 135.293a
- B. 14 CFR Part 135.293b

Completion Standards:

The pilot shall pass a written or oral test on the subjects identified in 135.293a. The pilot shall demonstrate his competence in practical skills and techniques in the aircraft by successfully completing all of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate required for the operations authorized and appropriate to the category, class and type of aircraft involved as per 135.293b.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 79 Instrument Proficiency Check 135.297

Objectives:

To ensure that the pilot is proficient in instrument procedures.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

14 CFR Part 135

Instructional Delivery Methods:

Demonstration
Discussion.

Subjects:

- A. 14 CFR Part 135.297a
- B. 14 CFR Part 135.297b
- C. 14 CFR Part 135.297c
- D. 14 CFR Part 135.297g

Completion Standards:

The pilot shall pass a written or oral test on the subjects identified in 135.297(c). The pilot shall demonstrate his competence in practical skills and techniques in the aircraft by successfully completing all of the maneuvers and procedures currently required for the original issuance of the particular pilot certificate required for the operations authorized and appropriate to the category, class and type of aircraft involved as per 135.297(c)(1).

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 80 Line Check 135.299

Objectives:

To ensure that the pilot is able to satisfactorily perform the duties and responsibilities of his assignment.

Equipment/Training Aids:

Aircraft
Hood

Courseware:

14 CFR Part 135

Instructional Delivery Methods:

Demonstration
Discussion

Subjects:

A. 14 CFR 135.299a

Completion Standards:

The pilot shall satisfactorily perform the duties and responsibilities of a pilot in command in operations under Part 135.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 81 Written Examinations

Objectives:

To ensure that the crewmember understands and is able to apply the general and specific knowledge required in his position.

Equipment/Training Aids:

None Required

Courseware:

Copies of the FAA Instrument Rating, Commercial Pilot, ATP written tests.

Examinations derived from the FAA written examinations and publications in the company library.

Instructional Delivery Methods:

Discussion

Subjects:

- A. Examinations covering the material presented in each curriculum segment.

Completion Standards:

The individual shall complete the appropriate study guide test, with a minimum grade of 70% corrected to 100% by the instructor and student to determine adequate knowledge of the subject.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 82 Check Airman, Flight and Ground
Instructor Ground Training

Objectives:

To ensure that the crewmember understands the responsibilities and duties of check airman, ground instructors, and flight instructors as they are explained in FAR 135.337.

Equipment/Training Aids:

Blackboard

Courseware:

14 CFR Part 135
Relevant flight manuals
Aviation Instructors Handbook, AC 60-14

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Pilot Check Airman Duties, Functions and Responsibilities
- B. The applicable provisions of FAR Part 135
- C. Company policies and procedures
- D. The appropriate methods, procedures, and techniques for conducting the required checks
- E. Proper evaluation of pilot performance including the detection of:
 - 1. improper and insufficient training
 - 2. personal characteristics that could adversely affect safety
- F. The appropriate corrective action for unsatisfactory checks
- G. The approved methods, procedures, and limitations for performing the required normal, abnormal and emergency procedures in the aircraft
- H. * The fundamental principals of the teaching-learning process
- I. * Teaching methods and procedures
- J. * The instructor-student relationship

* Note: These items are not required of an instructor who holds a valid Flight Instructor Certificate (CFI) - Ref: 135.339b

Completion Standards:

The individual shall complete an oral examination given by the instructor to determine adequate knowledge of the responsibilities and duties of check airman, ground instructors, and flight instructors as they are explained in FAR 135.337.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 83 Check Airman and Flight Instructor
Flight Training

Objectives:

To ensure that the crewmember understands the responsibilities and duties of check airman, ground instructors, and flight instructors as they are explained in FAR 135.339.

Equipment/Training Aids:

One of each aircraft the individual will operate.

Courseware:

Aircraft Flight Manual

Instructional Delivery Methods:

Lecture
Discussion
Drill

Subjects:

- A. Inflight training and practice in conducting flight checks from the left and right pilot seats in the required normal, abnormal, and emergency maneuvers to ensure that person's competence to conduct the pilot flight checks and flight training.
- B. The appropriate safety measures to be taken from either pilot seat for emergency situations that are likely to develop in training.
- C. The potential results of improper or untimely safety measures during training.

Completion Standards:

The individual shall comply with the requirements of FAR 135.339 and demonstrate competency and proficiency at a higher level than the original issuance requirements of the certificate he holds.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 84 Flight During Icing Conditions

Objectives:

To ensure that the pilot is knowledgeable in the safe
Operation of aircraft during flight in Icing Conditions.

Equipment/Training Aids:

Blackboard
TV/VCR/DVD

Courseware:

AC 91-74, AC 135-9
AFM
Videotape (NASA Glenn Research Center "TAILPLANE ICING")
SAFO 06016

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. In-Flight Icing Conditions
 - 1. Exit the icing conditions
 - 2. Use of autopilot
 - 3. minimum airspeeds
 - 4. Air Traffic Control (ATC)
 - 5. Severe icing conditions
- B. Icing aerodynamic effects
- C. Tailplane icing
- D. Previous ice related accidents

Completion Standards:

The individual shall complete an oral/written examination
Corrected to 100% by the instructor to determine adequate
Knowledge of the effects of ice accumulation on the aircraft
And procedures for flight in Icing Conditions.

Section 8
Subject Modules

Aircraft Training Manual

Subject Module: No. 85 RVSM OPERATIONS

Objectives:

To ensure that the pilot is knowledgeable in aircraft equipment, procedures, and policies concerning the operation within RVSM airspace.

Equipment/Training Aids:

Blackboard
TV/VCR

Courseware:

FAR 91 Appendix G
STC ST01904CH
STC ST02016CH
Royal Air Freight MEL'S, AAIP
POH Supplements

Instructional Delivery Methods:

Lecture
Discussion

Subjects:

- A. Flight Planning
- B. Preflight procedures
- C. Procedures prior to RVSM airspace entry
- D. In-flight procedures
- E. Post flight
- F. Special emphasis items

Completion Standards:

The individual shall complete an oral/written examination Corrected to 100% by the instructor to determine adequate Knowledge of equipment, policies, and operations within RVSM airspace.



Section 12-
Flight Maneuvers
Royal Air Freight, Inc.

Section 12
Flight Maneuvers

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Taxiing

Objective:

This procedure provides training for smooth, safe, and practical taxi operations.

Description:

When ready to taxi, release the parking brake and as aircraft begins to move forward test brakes by depressing each brake pedal. Taxi at a moderate speed and avoid making fast turns that put abnormal side loads on the landing gear. Maximum speed for taxiing should be that which would allow the aircraft to be safely controlled in the event of a brake failure. Unless passing close to another aircraft or object, the nose of the aircraft should always follow the painted taxi lines.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining all aspects of safe taxi procedures including the effect of wind on the airplane during taxiing.
- b. Follows the prescribed taxi check list, if pertinent.
- c. Performs a brake check immediately after the airplane begins movement, and thereafter uses proper braking technique.
- d. Complies with markings, signals and clearances, and follows the proper taxi route.
- e. Demonstrates proficiency in maintaining correct and positive control of the airplane's direction and speed considering existing conditions, and uses differential power, when necessary.
- f. Positions flight controls properly considering wind.
- g. Maintains awareness of the location and movement of all other vehicles along the taxi path and in the traffic pattern.
- h. Applies right-of-way rules and provides adequate spacing.
- i. Avoids creating hazards to persons or property.

Approved

 3/25/04
AGL - DETROIT FSDO
Principal Operations
Inspector

Effective Date: 11/10/99

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Normal Takeoff

Objective:

This maneuver describes methods and techniques to be employed during a normal takeoff.

Description:

The flying pilot shall brief the instructor pilot on takeoff procedures prior to clearance for takeoff. This briefing should consist of at least the following; Minimum Control Airspeed - V_{mc} , Best Single Engine Rate of Climb speed - V_{yse} , Best All Engine Climb speed - V_y , and what procedures will be followed if an engine failure occurs prior to V_{mc} .

When the aircraft is taxied onto the runway the transponder will be turned on, the magnetic compass and the heading indicator will be checked to note runway alignment, and the heading bug will be set to the climbout heading. During takeoff roll, monitor engine instruments and use whatever control displacement is necessary to compensate for crosswind conditions. Lift off should be made at no less than $V_{mc}+5$. After liftoff, allow aircraft to accelerate to Best Rate of Climb speed, and climb to 400 feet AGL using this speed and takeoff power. Upon reaching 400 feet AGL, accelerate to cruise climb speed and reduce to climb power.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind takeoffs and climbs including airspeeds, configurations, and emergency procedures.
- b. Adjusts the prop levers as recommended for the existing conditions.
- c. Notes any obstruction or other hazards in the takeoff path and reviews takeoff performance.
- d. Verifies wind condition.
- e. Aligns the airplane on the runway centerline.
- f. Applies aileron deflection in the proper direction, as necessary.
- g. Advances the power levers smoothly and positively to maximum allowable power.
- h. Checks engine instruments.

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- i. Maintains positive directional control on the runway centerline.
- j. Adjust aileron deflection during acceleration, as necessary.
- k. Rotates at the airspeed to attain lift-off at $V_{mc}+5$, V_{sse} , or the recommended lift-off airspeed and establishes wind- effect correction, as necessary.
- l. Establishes the single-engine, best rate-of-climb pitch attitude and accelerates to V_y .
- m. Establishes the all-engine best rate-of-climb pitch attitude when reaching V_y and maintains V_y , or V_y+10 to avoid high pitch angles.
- n. Retracts the wing flaps as recommended or at a safe altitude.
- o. Retracts the landing gear after a positive rate of climb has been established and a safe landing cannot be accomplished on the remaining runway, or as recommended.
- p. Climbs at V_y to 400 feet or to a safe maneuvering altitude.
- q. Maintains takeoff power to a safe maneuvering altitude and sets desired power.
- r. Uses noise abatement procedures, as required.

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Rejected Takeoff

Objective:

This maneuver provides training in positive aircraft control for stopping the aircraft if a malfunction occurs during the initial takeoff phase.

Description:

Practice of rejected takeoffs will be initiated either by a simulated loss of engine power initiated by the instructor pilot or by the instructor pilot's oral identification of a simulated malfunction. The flying pilot will reduce both power levers to idle and employ normal stopping procedures. Rejected takeoffs in multiengine aircraft shall be practiced at speeds that are no more than 50% of Vmc. If not contrary to the manufacturer's recommendation this may be accomplished by reducing power to idle with the power lever.

Acceptable Performance Guidelines:

- a. Use of proper techniques.
- b. Proper sequence of procedures.
- c. Positive directional control of aircraft.

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Short Field Takeoffs

Objective:

These maneuvers provide practice to develop proficiency in overcoming problems peculiar to marginal operations which may be encountered while taking off at short or soft fields.

Description:

It is impossible to specify an exact procedure to be used that would be correct in any given situation involving the need for a short field takeoff. For the purpose of standardization, however, the short and soft field takeoff will be treated as two separate maneuvers as follows:

- a. Short Field Takeoff: Prime consideration is given to operating the aircraft in such a manner that will result in the greatest altitude gain in a given distance; i.e., over a 50 foot obstacle.

Execution of the short field takeoff in a training environment should be as follows:

The short field takeoff will be made the same as a normal takeoff with the following exception. As the airspeed reaches the Best Angle of Climb speed, or $V_{mc}+5$, whichever is higher, the nose is rotated to an angle of attack that will cause the aircraft to break ground and climb at that specified speed. At an altitude of approximately 50 feet and after passing over a simulated 50 foot obstacle, the nose is lowered to allow that airspeed to increase to Best all engine Rate of Climb speed. Upon reaching 500 feet AGL accelerate to Cruise Climb speed and reduce to climb power. The manufacturer's recommended flap setting, power settings, and speeds will be used with the exception of best angle of climb speed. If published best angle of climb speed is less than $V_{mc}+5$, $V_{mc}+5$ will be used. The use of any climb speed less than $V_{mc}+5$ should be avoided in the training environment.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of a short-field takeoff and climb profile including the significance of appropriate airspeeds, configurations, emergency procedures, and expected performance for existing operating conditions.
- b. Selects the recommended wing flap setting.
- c. Adjusts the prop levers as recommended for the existing conditions.

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- d. Reviews takeoff performance capabilities considering obstructions and conditions affecting the airplane's performance.
- e. Positions the airplane for maximum runway availability and aligns it with the runway centerline.
- f. Advances power levers smoothly and positively to maximum allowable power.
- g. Checks engine instruments.
- h. Adjusts the pitch attitude to attain maximum rate of acceleration.
- i. Maintains positive directional control on the runway centerline.
- j. Rotates at the airspeed to attain lift-off at $V_{mc}+5$, V_x , V_{sse} , or at the recommended airspeed, whichever is greater.
- k. Climbs at V_x , V_{sse} , or the recommended airspeed, whichever is greater until obstacle is cleared, or to at least 50 feet above the surface, then accelerates to V_y and maintains V_y , or V_y+10 to avoid high pitch angles.
- l. Retracts the landing gear after a positive rate of climb has been established and a safe landing cannot be made on the remaining runway or as recommended.
- m. Retracts the wing flaps as recommended or at a safe altitude.
- n. Climbs at V_y to 400 feet AGL or to a safe maneuvering altitude.
- o. Maintains takeoff power to a safe maneuvering altitude and sets desired power.
- p. Uses noise abatement procedures as required.
- q. Establishes and maintains a cruise climb airspeed plus or minus 5 Knots.
- r. Maintains a straight track over the extended runway centerline until a turn is required.
- s. Complete the after-takeoff checklist.

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Crosswind Takeoffs

Objective:

This maneuver provides training in the more complex control techniques and limitations of the aircraft during takeoff with crosswind conditions.

Description:

Careful consideration should be given to the effects of a strong crosswind before even taxiing to the takeoff position. Narrow wheel treads, high center of gravity and light weight when combined, result in a aircraft easily turned over in gusty cross and tail winds. At the start of the takeoff, the controls are displaced as though the airplane were being slipped into the wind. As the nosewheel comes off the ground, the rudder is used to prevent crabbing into the wind. While the aircraft is becoming airborne, the wheel into the wind leaves the ground last. If these corrections were not made, gusty winds could cause the plane to skip and if the plane were in a crab, landing gear failure could result. The aircraft should remain in slipping flight until well clear of the ground and then allowed to crab into the wind to continue the flight path straight out the extended runway centerline.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind takeoffs and climbs including airspeeds, configurations, and emergency procedures.
- b. Adjusts the prop levers as recommended for the existing conditions.
- c. Notes any obstruction or other hazards in the takeoff path and reviews takeoff performance.
- d. Verifies wind condition.
- e. Aligns the airplane on the runway centerline.
- f. Applies aileron deflection in the proper direction, as necessary.

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- g. Advances the power levers smoothly and positively to maximum allowable power.
- h. Checks engine instruments.
- i. Maintains positive directional control on the runway centerline.
- j. Adjust aileron deflection during acceleration, as necessary.
- k. Rotates at the airspeed to attain lift-off at $V_{mc}+5$, V_{sse} , or the recommended lift-off airspeed and establishes wind- effect correction, as necessary.
- l. Establishes the single-engine, best rate-of-climb pitch attitude and accelerates to V_y .
- m. Establishes the all-engine best rate-of-climb pitch attitude when reaching V_y and maintains V_y , or V_y+10 to avoid high pitch angles.
- n. Retracts the landing gear after a positive rate of climb has been established and a safe landing cannot be accomplished on the remaining runway, or as recommended.
- o. Retracts the wing flaps as recommended or at a safe altitude.
- p. Climbs at V_y to 400 feet or to a safe maneuvering altitude.
- q. Maintains takeoff power to a safe maneuvering altitude and sets desired power.
- r. Uses noise abatement procedures, as required.

Lower Than Standard IFR Takeoffs

Objective:

To enable the pilot to determine when a lower than standard takeoff can be made and provide the pilot training in reduced visibility takeoffs.

Description:

The pilot will brief the non-flying pilot to insure mutual understanding of takeoff procedures to be used. The pilot will concentrate primarily on the aircraft instruments while the non-flying pilot monitors outside centerline indications. Special attention should be given to the thorough use of checklist procedures. Smooth positive power lever application and proper power settings will be emphasized. The takeoff run will be down the centerline with directional control maintained primarily by nose wheel steering during the early phase of takeoff in aircraft so equipped. Then rudder control and differential power if required will be used. Differential braking should not be necessary except in emergencies.

All pilots requiring instrument privileges will be trained and tested for this procedure using a view limiting device from the time of initial runway alignment onward.

Acceptable Performance Guidelines:

- a. Pilot must determine lower than standard takeoff can be accomplished at that airport and review the runway markings/lights for the departure runway.
- b. Pilot should have an appropriate approach chart for the departure/takeoff alternate airports in place with proper radio frequencies set in the event of an emergency immediately after departure.
- c. Maintain runway centerline during takeoff roll by reference to centerline markings and/or lights.
- d. After normal rotation, pilot should establish normal climb utilizing localizer course for runway alignment until reaching a safe altitude (approximately 400 AGL).
- e. Pilot should maintain heading plus or minus 10 degrees and assigned climb speed plus or minus 5 Knots during climb to assigned altitude.

Note: Refer to AIM - Pilot should review runway markings and lighting.

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Engine Failure on Takeoff Before Vmc

Objective:

To enable the pilot to identify an engine failure during takeoff prior to reaching Vmc and accomplish steps necessary to abort the takeoff.

Description:

During a normal takeoff, the instructor will simulate an engine failure by retarding a power lever to idle prior to reaching a speed of 50 percent Vmc. The pilot will abort the takeoff.

It is important that the instructor review with the pilot, prior to the flight, how an engine failure will be simulated and insure that the pilot and instructor have agreed upon the procedures prior to the flight.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the reasons for the procedures used for engine failure during takeoff before Vmc including related safety factors.
- b. Aligns the airplane on the runway centerline.
- c. Advances the power levers smoothly to maximum allowable power.
- d. Checks engine instruments.
- e. Maintains directional control on the runway centerline.
- f. Closes power levers smoothly and promptly when engine failure occurs.
- g. Maintains directional control and applies braking, as necessary.

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Engine Failure on Takeoff After Liftoff

Objective:

To enable the pilot to identify an engine failure after lift-off and accomplish the appropriate procedures to insure continued flight.

Description:

Upon reaching a safe altitude with gear and flaps retracted, the instructor will simulate an engine failure by reducing the power lever to idle. The pilot should accomplish the proper engine failure procedures. Instructor will advance the power lever to a zero thrust power setting after the pilot has identified and verified the failed engine and accomplished the proper procedures for feathering and securing the engine.

It is important that the instructor review with the pilot, prior to the flight, how an engine failure will be simulated and insure that the pilot and instructor have agreed upon the procedures prior to the flight.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the reasons for the procedures used if engine failure occurs after lift-off including related safety factors.
- b. Recognizes engine failure promptly.
- c. Sets the engine controls, reduces drag, and identifies and verifies the inoperative engine after simulated engine failure.
- d. Establishes Vyse if there are no obstructions; if obstructions are present, establishes Vxse or Vmc+5, whichever is greater, until obstructions are cleared, then Vyse and trims the airplane.
- e. Maintains positive control of the airplane.
- f. Follows the prescribed checklist to verify the accomplishment of procedures for securing the inoperative engine.

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- g. Establishes a bank toward the operating engine as required for best performance.
- h. Recognizes the airplane's performance capability; if climb or level flight is impossible, maintains Vyse and initiates an approach to the most suitable landing area.
- i. Attempts to determine the reason for the engine malfunction.
- j. Monitors the operating engine and makes necessary adjustments.
- k. Maintains the specified heading, plus or minus 10 degrees, and the specified airspeed, plus or minus 5 Knots.
- l. Divides attention between coordinated airplane control, flightpath, and orientation.
- m. Contacts the appropriate facility for assistance, if necessary.

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Climbs and Climbing Turns

Objective:

These maneuvers provide practice in controlling the aircraft during a climb with normal angles of bank while scanning the area for other aircraft.

Description:

Climbs and climbing turns will be made in clean and takeoff configurations with climb power. Climbs will demonstrate the performance and may reveal heating problems at V_x , V_y , V_{xse} , V_{yse} , and in obstacle clearance configuration.

Climbing turns to predetermined headings up to 360 degrees will be practiced. In climbing turns, angles of bank to 45 degrees can be used to demonstrate loss of performance with rise in "g" forces.

Acceptable Performance Guidelines:

- a. Airspeed plus or minus 5 Knots.
- b. Recovery to assigned heading within plus or minus 5 degrees.
- c. Power control within 50 RPM and 1" hg.
- d. Engine temperatures within limits.
- e. Ball not more than 1/2 diameter out of center due to skids or slips.

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Shallow and Medium Turns

Objective:

These maneuvers provide practice in controlling the aircraft during normal angles of bank.

Description:

Shallow turns involve bank angles up to approximately 25 degrees. At these angles, the inherent stability of the aircraft tends to return it to level flight.

Medium turns involve banks of approximately 25 degrees to 45 degrees. The aircraft tends to maintain this angle without further application of aileron control.

The trainee's instruction will include the following items:

- a. Checking for traffic before starting the turns.
- b. Use of rudder to overcome aileron yaw.
- c. Effect of speed on control forces and responses.
- d. Effect of "g" forces in a turn.
- e. Turns in the clean configuration at cruise speed, and the takeoff and landing configuration at V_x .

Acceptable Performance Guidelines:

- a. Airspeed plus or minus 5 Knots.
- b. Bank within plus or minus 5 degrees of desired angle.
- c. Altitude within plus or minus 50' shallow turn.
- d. Altitude within plus or minus 100' medium turn.
- e. Recovery to assigned heading within plus or minus 5 degrees shallow turn.
- f. Recovery to assigned heading within plus or minus 10 degrees medium turn.
- g. Ball not more than 1/2 diameter out of center due to skids or slips.

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Steep 360 Degree Power Turns

Description:

The pilot will enter a steep bank attitude of at least 45 degrees to execute 360 degrees of turn. When entry airspeed is not recommended by the manufacturer, normal cruise airspeed or maneuvering speed--whichever is lower--will be used. Steep turns should be practiced, both left and right, and by rolling directly from one 360 degree turn into the other. In low powered airplanes, additional power should be added smoothly as the turn is established in order to maintain a stable airspeed. Entry and rollout rates should be smooth and executed with proper coordination.

Acceptable Performance Guidelines:

- a. Airspeed +/-10 Knots.
- b. Altitude within +/-100'.
- c. Bank within +/-5 degrees.
- d. Heading +/-10 degrees of entry heading.
- e. Performance also will be judged on the basis of coordination and smoothness.

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Approaches to Stall

Objective:

These maneuvers afford familiarization with the airplane handling characteristics in the initial stall buffet region and provide training in stall recognition and proper recovery techniques.

Description:

Approaches to stall should be practiced at a minimum altitude of 3000 feet AGL. Stalls will be entered with at least 65% power; with power reduced on all engines; and in landing and in cruising configurations. Stalls should be entered by trimming the aircraft to either 1.5 V_{so} or 1.5 V_{s1} whichever is appropriate, and smoothly increasing the angle of attack until the first physical indication of the stall occurs.

Recovery should be initiated at the first physical indication of a stall; such as uncontrollable pitching, buffeting, rapid decay of control effectiveness, or the application of full up elevator without producing further loss of altitude.

Note: No stalls will be practiced with any engine cut off and the other engine(s) developing effective power.

Acceptable Performance Guidelines:

Imminent Stalls, Gear Up and Flaps Up

- a. Exhibits commercial pilot knowledge by explaining the aerodynamic factors associated with stalls, gear up and flaps up including changes in stall speed in various configurations, power setting, pitch attitudes, weights, and bank angles, and the procedure for recovery.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Stabilizes the airplane at approach airspeed in level flight with a gear-up, flaps-up configuration and appropriate power setting.
- d. Establishes straight-and-level flight and level 20 degrees bank turns (plus or minus 10 degrees) and adjusts pitch attitude and power as necessary to induce an imminent stall while maintaining altitude (+150 feet, -50 feet).
- e. Recognizes imminent stalls at the first indication of buffeting or decay of control effectiveness and recovers with proper power and control application.
- f. Returns to airspeed and configuration as specified by the examiner.
- g. Avoids full stall, excessive pitch change, excessive altitude loss, or flight below 3,000 feet AGL.

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Imminent Stalls, Gear Down and Approach Flaps

- a. Exhibits commercial pilot knowledge by explaining the aerodynamic factors associated with stalls, gear down and approach flaps, including changes in stall speed in various configurations, power settings, pitch attitudes, weights, and bank angles, and the procedure for recovery.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Stabilizes the airplane at approach airspeed in level flight with gear down and approach flap configuration and appropriate power setting.
- d. Establishes straight-and-level flight and level 20 degrees bank turns, plus or minus 10 degrees, and adjusts pitch attitude and power as necessary to induce an imminent stall while maintaining altitude, +100 feet, -50 feet.
- e. Recognizes imminent stalls at the first indication of buffeting or decay of control effectiveness and recovers with proper power and control application.
- f. Returns to airspeed and configuration as specified by the examiner.
- g. Avoids full stalls, excessive pitch change, excessive altitude loss, or flight below 3,000 feet AGL.

Imminent Stalls, Gear Down and Full Flaps

- a. Exhibits commercial pilot knowledge by explaining the aerodynamic factors associated with stalls, gear down and full flaps, including changes in stall speed in various configurations, power settings, pitch attitudes, weights, and bank angles, and the procedure for recovery.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Stabilize the airplane at approach airspeed in level flight with gear down and full flaps configuration and appropriate power setting.
- d. Establishes straight-and-level flight and level 20 degree bank turns, plus or minus 10 degrees, and adjusts pitch attitude and power as necessary to induce an imminent stall while maintaining altitude, +100 feet -50 feet.
- e. Recognizes imminent stalls at the first indication of buffeting or decay of control effectiveness and recovers with proper power and control application.
- f. Returns to airspeed and configuration as specified by the examiner.
- g. Avoids full stalls, excessive pitch change, excessive altitude loss, or flight below 3,000 feet AGL.

Maneuvering at Minimum Controllable Speeds

Objective:

These maneuvers demonstrate the degree of controllability available while in close proximity to the prestall buffet. They provide the opportunity to practice control techniques which are most beneficial in the low speed regimes encountered during takeoffs, landings, and powerplant failure emergency situations.

Description:

Maneuvering at minimum speed is practiced in both cruise and landing configuration, and will consist of straight flight, turns, climbs, and descents.

By definition the term "Flight at minimum controllable airspeed" means - A speed at which any further increase in angle of attack, or increase in back pressure will cause an immediate physical indication of a stall.

Stall warning devices on U.S. Certificated aircraft are required by Regulation to be activated "At least 5, but not more than the greater of 10 Knots or 15% of the stalling speed, and must continue until the stall occurs." In view of the above requirement, flight at minimum controllable airspeed will result in activation of the stall warning device.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the flight characteristics and controllability associated with maneuvering during slow flight.
- b. Selects an entry altitude that will allow the maneuver to be performed no lower than 3,000 feet AGL.
- c. Establishes and maintains slow flight, specified gear position, various flap settings and angle of bank, during straight-and-level flight and level turns.
- d. Maintains the specified altitude, plus or minus 100 feet.
- e. Maintains the specified heading during straight flight, plus or minus 10 degrees.
- f. Maintains the specified bank angle, plus or minus 10 degrees, during turning flight.
- g. Maintains an airspeed of 5 Knots (plus or minus 5 Knots) above stall speed or V_{mc} , whichever is greater.

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Propeller Feathering and Unfeathering

Objective:

To develop in the trainee the proper procedures and proficiency for feathering and unfeathering an inoperative engine.

Description:

a. Feathering:

At a safe altitude (minimum 3000' above terrain) and within landing distance of an adequate airport, an engine will be cut with mixture lever or fuel selector. The following procedures will then be followed:

1. Maintain aircraft control.
2. Prop levers as required; both power levers positioned for maximum power.
3. Gear, and Flaps as required.
4. Determine which engine failed, and verify by closing power lever on dead engine.
5. If unable to remedy cause of failure, feather.
6. Turn towards airport and contact tower.
7. Clean up dead engine in accordance with manufacturer's approved procedures and check for fire.
8. Monitor engine instruments on operating engine, and adjust power, cowl flaps, and speed as necessary.
9. Maintain altitude with airspeed at least Vyse or above if possible.

- b. Unfeathering: Unfeathering will be accomplished in accordance with the engine restart in-flight checklist.

Acceptable Performance Guidelines:

Proficiency will be evaluated on the basis of maintaining desired heading, airspeed and altitude; prompt identification of a failed engine; and the accuracy of shutdown and restart procedures.

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Maneuvering with Powerplant Inoperative

Objective:

This maneuver provides practice in properly maintaining aircraft control during one of the more critical inflight emergencies. It develops a knowledge of aircraft characteristics under adverse conditions, together with control applications necessary to achieve a maximum margin of safety.

Description:

With one engine feathered or set at zero thrust power, the trainee will make turns into and away from inoperative engine using up to 30 degrees of bank. Power will be used as required to maintain altitude and/or airspeed.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the flight characteristics and controllability associated with maneuvering with one engine inoperative.
- b. Sets the engine controls, reduces drag, identifies and verifies the inoperative engine after simulated engine failure.
- c. Attains the best engine inoperative airspeed and trims the airplane.
- d. Maintains control of the airplane.
- e. Attempts to determine the reason for the engine malfunction.
- f. Follows the prescribed checklist to verify procedures for securing the inoperative engine.
- g. Establishes a bank toward the operating engine, as necessary, for best performance.
- h. Turns toward the nearest suitable airport.
- i. Monitors the operating engine and makes necessary adjustments.
- j. Demonstrates coordinated flight with one engine inoperative (propeller feathered, if possible) including-
 1. straight-and-level flight.
 2. turns in both directions.
 3. descents to assigned altitudes.
 4. climb to assigned altitudes, if airplane is capable of climbs under existing conditions.
- k. Maintains the specified altitude, plus or minus 100 feet, when a constant altitude is specified, and levels off from climbs and descents, at specified altitudes, plus or minus 100 feet.

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- l. Maintains the specified heading during straight flight, plus or minus 10 degrees.
- m. Maintains the specified bank angle, plus or minus 10 degrees, during turns.
- n. Divides attention between coordinated control, flightpath, and orientation.
- o. Demonstrates engine restart in accordance with prescribed procedures.

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Vmc Demonstrations

Objective:

Provide the trainee with an understanding of Vmc and its effect on aircraft operation.

Description:

- a. Vmc is the minimum speed at which an airplane is controllable with one engine windmilling and the other at takeoff power with the aircraft in the most adverse configuration. For Vmc demonstrations, the aircraft will be flown as nearly as practicable under the following conditions:

At highest altitude where takeoff power can be developed, however, at no time below 3000 feet above the ground; landing gear retracted; flaps at takeoff setting; center of gravity at the aft limit; critical engine windmilling and takeoff power on operating engine.

Note: Since Vmc is a function of power it will be possible on any light twin to attempt this demonstration at an altitude where the aircraft will reach stall speed prior to Vmc.

- b. The Vmc demonstration is entered with the aircraft configured as above at an airspeed between Single Engine Best Angle of Climb speed, and Single Engine Best Rate of Climb speed. Airspeed is reduced at one mph per second. Rudder may be used as required to full deflection, but aileron is limited to that which produces a maximum of 5 degrees wing down into the operating engine. When a constant heading can no longer be maintained, NOTE THE AIRSPEED. Effect a recovery to normal flight by lowering the nose and reducing power on the operative engine at the same time.

Note: Rapid rolling tendencies may develop if the airspeed reduction is too abrupt or altitude is such that the aircraft stalls before reaching Vmc. In this event immediate reduction of power on the operating engine may be required to effect a prompt recovery.

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Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the causes of loss of directional control at airspeeds less than Vmc minimum engine inoperative control speed, the factors affecting Vmc, and the safe recovery procedures.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Establishes the airplane configuration with-
 1. propeller set to high RPM.
 2. landing gear retracted.
 3. flaps set in takeoff position.
 4. cowl flaps set in takeoff position.
 5. engines set to rated takeoff power or as recommended.
 6. trim set for takeoff.
 7. power on the critical engine reduced to idle (avoid abrupt power reduction).
- d. Establishes a single-engine climb attitude (inoperative engine propeller windmilling) with the airspeed representative of that following a normal takeoff.
- e. Establishes a bank toward the operating engine, as necessary, for the best performance.
- f. Reduces the airspeed slowly with the elevators while applying rudder to maintain directional control until all available rudder is applied.
- g. Recognizes the indications of loss of directional control.
- h. Recovers promptly by reducing the angle of attack to regain control and, if necessary, adjusts power on operating engine sufficiently to maintain control with minimum loss of altitude.
- i. Recovers to the entry heading, plus or minus 10 degrees.

Unusual Attitude Recovery

Description:

These are not normally practiced. The key to recovery is not how you got there but where you go from here. As soon as an unusual attitude is detected, the recovery should be initiated primarily by reference to the airspeed indicator, altimeter, vertical-speed indicator, and turn-and-slip indicator. First bank attitude for wings level then pitch to nose level is generally the best technique. As the rate of movement of altimeter and airspeed indicator needles decreases, the attitude is approaching level flight. When the needles stop and reverse direction, the aircraft is passing through level flight. A practiced cross-check is the best insurance policy.

Acceptable Performance Standards:

Proper sequence of recovery as addressed above.
No exceeding any limits.
No secondary stalls, or spins.

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Instrument Holding Procedures

Objective:

This maneuver provides practice in applying instrument holding procedures.

Description:

Decelerate to holding airspeed before reaching the holding fix. Unless specified by the aircraft manufacturer, holding speed should be the minimum consistent with good aircraft control, but never in the area of reverse command. This lower speed will require less power and allow prolonged holding and fuel economy.

Procedures for holding patterns and recommended entry procedures outlined in Part I of the Airman's Information Manual will be used.

Acceptable Performance Guidelines:

- a. Adheres to holding procedures as listed in the Airman's Information Manual.
- b. Altitude plus or minus 100 feet while holding.
- c. Airspeed plus or minus 10 Knots.

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Instrument Approach Briefing

Description:

The briefing informs the non-flying pilot of the type of approach, minimums, missed approach procedure, and expected required calls (altitudes, times, airport in sight or not in sight, minimums and deviations).

Acceptable Performance Guidelines:

The approach briefing shall be presented as required.

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ILS Approaches

Objective:

This maneuver affords practice in terminal area arrivals utilizing the ILS for the final approach portion.

Description:

Normal ATC procedures will be followed using the appropriate ATC and navigational facilities. The instructor pilot or ATC will clear the trainee for a front course approach. The localizer frequency will be set and identified on the appropriate NAV receiver with front course heading set on the OBS. The marker beacon should be turned on, the ADF turned on and tuned to proper frequency, and identified and functioning. The second VHF NAV receiver, if available, should be tuned and identified as necessary to provide fix points along the approach course, if applicable, or also be tuned to the localizer being used, or for missed approach maneuvering. The before landing checklist should be completed up to propeller and flaps, during the intermediate approach segment, but no later than before passing the outer marker outbound.

Prior to reaching the final approach fix inbound, the trainee shall verbally verify the field elevation, decision height, and missed approach procedures. As the glide slope is intercepted, the before landing checklist will be completed with the exception of landing flaps, which may be delayed until the landing is assured. After passing the final fix, the approach airspeed should be maintained. At decision height, the trainee will continue the approach and land with hood removed or execute a missed approach as directed by the instructor pilot.

Acceptable Performance Guidelines:

The trainee will comply with ATC or instructor's instructions, and fly the airplane in a precise coordinated manner. The following standards are considered acceptable:

- a. Exhibits adequate knowledge of the elements of an ILS instrument approach procedure.
- b. Selects and complies with the appropriate ILS instrument approach procedure to be performed.
- c. Establishes two-way communication with ATC, as appropriate to the phase of flight or approach segment, and uses proper radio communications phraseology and technique.

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- d. Selects, tunes, identifies, and confirms the operational status of ground and aircraft navigation equipment to be used for the approach procedure.
- e. Complies with all clearances issued by ATC or the instructor pilot.
- f. Advises ATC or the instructor pilot anytime the aircraft is unable to comply with a clearance.
- g. Establishes the appropriate aircraft configuration and airspeed, considering turbulence and wind shear, and completes the aircraft checklist items appropriate to the phase of flight.
- h. Maintains, prior to beginning the final approach segment, desired altitude within 100 feet, heading or course within 10 degrees, and airspeed within 10 knots.
- i. Applies the necessary adjustments to the published DH and visibility criteria for the aircraft approach category when required, such as -
 - 1. FDC and Class II NOTAMs.
 - 2. inoperative aircraft and ground navigation equipment.
 - 3. inoperative visual aids associated with the landing environment.
 - 4. National Weather Service (NWS) reporting factors and criteria.
- j. Establishes an initial rate of descent at the point where the electronic glide slope is intercepted, which approximates that required for the aircraft to follow the glide slope.
- k. Allows, while on the final approach segment, no more than three-quarter-scale deflection of either the localizer or glide slope indications, and maintains the desired airspeed within 10 knots.
- l. Avoids descent below the DH before initiating a missed approach procedure or transitioning to a normal landing.
- m. Initiates immediately the missed approach procedure when, at the DH, the required visual references for the intended runway are not distinctly visible and identifiable.
- n. Transitions to a normal landing approach when the aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers.

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Localizer (LOC), Back Course/DME

Objective:

This maneuver affords practice in terminal area arrivals utilizing the localizer in both front course, as well as back course approaches, in conjunction with the use of a DME for distances inbound in lieu of marker beacons or compass locators.

Description:

The instructor and trainee will first assure that an approved approach chart is available for this maneuver. ATC or the instructor pilot will clear the trainee for a specific LOC or LOC Back Course approach. The primary localizer approach frequency will be tuned in to assure proper localizer needle function. Since each DME approach is different, close reference will be made to the approach chart for proper frequencies and distances. Generally, a VOR is also identified whereas a radial from that VOR can also be utilized to verify the readings from the DME. Therefore, it is advisable to tune the secondary receiver to the frequency and turn the OBS to the radial indicated, especially where the pilots decision areas are located. Remember, the approach charts where the use of DME are involved show a DME distance and an actual distance. This is caused by the off centerline locations of the VORLOC being used. The before landing checklist, up to the landing gear down and landing flaps, will be accomplished prior to crossing the DME position or VOR intersection indicated on the chart. This is called a position fix.

The standard procedure is to descend from the position fix to the decision height, level off and continue at the DH altitude until the missed approach point (MAP) is reached. If the approach lights or runway lights are not in sight at this point, a missed approach will be made. NOTE: On a back course approach, the localizer needle is reversed unless the radio equipment being used has a back course needle reversing mode. Regardless, you must disregard all glide slope indications on a back course approach. Full deflection of the localizer needle in either case requires an immediate call to the tower and a missed approach.

The position fix can be identified by the VOR radial indicated on the approach chart and/or the DME distance indicated on the approach chart.

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Prior to crossing the position fix inbound, the trainee will verify field elevations, decision heights, missed approach procedures, and time from outer marker to missed approach. Time over the position will be noted while holding the localizer centered.

The before landing checklist will be completed with landing gear down and flaps set to approach.

Acceptable Performance Guidelines:

The trainee will comply with the recommended procedures and maneuvers in a smooth, coordinated manner. The following are considered acceptable:

- a. Make the approach within the acceptable needle deflection on the localizer.
- b. Altitude, +50 feet, -0 feet at MDA.
- c. Airspeed, +/- 5 knots from position fix inbound.

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VOR Approaches

Objective:

This maneuver affords practice in terminal area arrivals utilizing the VOR for the final approach portion.

Description:

ATC or the instructor pilot will clear the trainee for a specific VOR approach. The primary VHF navigational receiver to be used will be properly tuned, identified, and course selector set for the approach. The number two navigational receiver is to be used to identify intersections, missed approach point, or as a backup for the number one receiver, it also will be properly tuned.

The before landing checklist should be accomplished immediately, with the exception of landing gear, prior to commencing the approach to reduce pilot workload and allow concentration on maneuvering the aircraft for the approach. The landing checklist may be accomplished at any time during the approach with the exception of landing gear and flaps. Prior to the final approach fix, the trainee will verify field elevation, MDA, time to missed approach, and missed approach procedures.

Upon passing the final approach fix, begin descent to MDA or step down fix, if applicable. Landing gear should be extended at the final approach fix inbound. Landing flaps may be delayed until landing is assured.

At MDA and appropriate time, the trainee will advise that the airport should be in sight. The instructor will advise that a landing or missed approach be executed.

Two variations of the VOR approach now exist. They are the DME arc to final approach course and the Area Navigation approach. The DME arc to final approach is accomplished by flying an arc around the VORTAC at a specified distance until intercepting the final approach course.

The RNAV approach is accomplished in the same manner as the normal VOR approach, but utilizes waypoints in lieu of the actual VORTAC station. This approach requires the use of special on-board RNAV equipment and special RNAV approaches are published. Unless the RNAV equipment is approved, there will be no RNAV approaches conducted during actual instrument conditions.

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Acceptable Performance Guidelines:

The trainee will comply with ATC and published procedures. The aircraft will be operated in a smooth coordinated manner. Proper tuning and setting of the radios should be accomplished and no full scale deflections of the CDI during final approach are acceptable. Standards are as follows:

- a. Exhibits adequate knowledge of the elements of a VOR/VORTAC instrument approach procedure.
- b. Selects and complies with the appropriate VOR/VORTAC instrument approach procedure to be performed.
- c. Establishes two-way communications with ATC, as appropriate, to the phase of flight or approach segment, and uses proper radio communications phraseology and technique.
- d. Selects, tunes, identifies, and confirms the operational status of ground and aircraft navigational equipment to be used for the approach procedure.
- e. Complies with all clearances issued by ATC or the instructor pilot.
- f. Recognizes if heading indicator and/or attitude indicator is inaccurate or inoperative, advises controller, and takes appropriate action.
- g. Advises ATC or the instructor pilot anytime the aircraft is unable to comply with a clearance.
- h. Establishes the appropriate aircraft configuration and airspeed considering turbulence and wind shear, and completes the aircraft checklist items appropriate to the phase of the flight.
- i. Maintains, prior to beginning the final approach segment, altitude within 100 feet, heading within 10 degrees and allows less than full-scale deflection of the CDI or 10 degrees in the case of RMI, and maintains airspeed within 10 knots.
- j. Applies the necessary adjustments to the published MDA and visibility criteria for the aircraft approach category when required, such as -
 1. FDC and Class II NOTAMS.
 2. Inoperative aircraft and ground navigation equipment.

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- 3. Inoperative visual aids associated with the landing environment.
- 4. National Weather Service (NWS) reporting factors and criteria.
- k. Establishes a rate of descent and track that will ensure arrival at the MDA prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made at a normal rate using normal maneuvers.
- l. Allows, while on the final approach segment, no more than a three-quarter-scale deflection of the CDI or within 10 degrees in case of an RMI, and maintains airspeed within 10 knots.
- m. Maintains the MDA, when reached, within +100 feet, -0 feet to the MAP.
- n. Executes the missed approach procedure when the required visual references for the intended runway are not distinctly visible and identifiable at the MAP.
- o. Executes a normal landing from a straight-in or circling approach when instructed by the instructor pilot.

VOR/DME Approach

Objective:

This maneuver affords practice in terminal area arrivals utilizing the VOR for the final approach portion in conjunction with the use of the DME for assistance in identifying the position fix. The position fix is generally identified by a radial of a nearby VOR. The trainee will assure that the correct approach chart is being used and the correct frequencies are tuned in.

Description:

ATC or the instructor pilot will clear the trainee for the specific VOR approach. The primary VHF navigational receiver to be used will be properly tuned, identified, and course selector set for the approach. If the number two navigational receiver is to be used to identify intersections or position fixes, missed approach points or a backup for the number one receiver, it also will be properly tuned. The DME will also be tuned to the proper frequency and the trainee will assure that he has noted the DME distances. The trainee will be aware that DME distance rarely are the same as the actual distances.

The before landing checklist should be accomplished immediately, with the exception of landing gear, prior to commencing the approach to reduce pilot workload and allow concentration of maneuvering the aircraft for the approach. The landing checklist may be accomplished at any time during the approach with the exception of landing gear and flaps. Prior to the final approach position fix, the trainee will verify field elevation, MDA, time to missed approach, missed approach procedures, and the DME distances.

Upon passing the final approach position fix, begin descent to MDA or step down fix, if applicable. Landing gear should be extended at the final approach position fix inbound. Landing flaps may be delayed until landing is assured. The DME will be used to verify position fix on inbound leg.

At MDA, appropriate time and DME distance, the trainee will advise the airport should be in sight. The instructor will advise that a landing or missed approach be executed.

For DME arc instructions, see VOR approach.

For RNAV approach instructions, see VOR approach.

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Acceptable Performance Guidelines:

The trainee will comply with ATC and published procedures. The aircraft will be operated in a smooth, coordinated manner. Proper training and setting of the radios should be accomplished and no full scale deflections of the CDI during final approach are acceptable. Acceptable standards are as follows:

- a. Altitude +50, -0 MDA.
- b. Airspeed, +/- 5 knots specified for approach.
- c. Able to land straight in or circle for landing without excessive maneuvering.

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NDB Approach

Objective:

This maneuver affords practice in terminal area arrivals utilizing the ADF for the final approach portion.

Description:

The instructor pilot shall clear the trainee for an NDB approach from any specific position, or following a descent in a holding pattern. Emphasis will be placed on the proper technique in tracking a magnetic bearing. The before landing checklist, up to landing gear down and landing flaps, will be accomplished inbound to the NDB.

Station passage is confirmed when the ADF needle has made more than a 90 degree swing. As station passage is recognized, the before landing checklist will be completed with the exception of landing flaps which may be delayed until landing is assured.

Prior to crossing the station inbound, the trainee will verify field elevation, MDA, missed approach procedure, and time from the station to missed approach.

Time over the station will be noted and the descent normally made at 500 FPM. At MDA and appropriate time, the trainee will advise that the airport should be in sight and the instructor pilot will advise if a landing or missed approach is to be executed.

Acceptable Performance Guidelines:

The trainee will comply with recommended procedures and maneuver the aircraft in a smooth coordinated manner. The following standards are considered acceptable:

- a. Exhibits adequate knowledge of the elements of an NDB instrument approach procedure.
- b. Selects and complies with the appropriate NDB instrument approach procedure to be performed.
- c. Establishes two-way communications with ATC, as appropriate to the phase of flight or approach segment, and uses proper radio communications phraseology.
- d. Selects, tunes, identifies, confirms, and monitors the operational status of ground and aircraft navigation equipment to be used for the approach procedure.

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- e. Complies with all clearances issued by ATC or the Instructor pilot.
- f. Recognizes when heading indicator and/or attitude indicator is inaccurate or inoperative, advises controller and takes appropriate action.
- g. Advises ATC or the instructor pilot anytime the aircraft is unable to comply with a clearance.
- h. Establishes the appropriate aircraft configuration and airspeed considering turbulence and wind shear, and completes the aircraft checklist items appropriate to the phase of flight.
- i. Maintains, prior to beginning the final approach segment, the altitude within 100 feet, heading and bearing within 10 degrees, and airspeed within 10 knots.
- j. Applies the necessary adjustments to the published MDA and visibility criteria for the aircraft approach category when required, such as -
 - 1. FDC and Class II NOTAMs.
 - 2. inoperative aircraft and ground navigation equipment.
 - 3. inoperative visual aids associated with the landing environment.
 - 4. National Weather Service (NWS) reporting factors and criteria.
- k. Establishes a rate of descent and track that will ensure arrival at the MDA prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made at a normal rate using normal maneuvers.
- l. Maintains, while on the final approach segment, a deviation of not more than 10 degrees from the desired bearing, and maintains airspeed within 10 knots.
- m. Maintains the MDA, when reached, within +100 feet, -0 feet to the MAP.
- n. Executes the missed approach procedure when the required visual references for the intended runway are not distinctly visible and identifiable at the MAP.
- o. Executes a normal landing from a straight-in or circling approach when instructed by ATC or the instructor pilot.

Circling Approach

Objective:

This maneuver is used to provide training in maneuvering the aircraft at low altitudes under weather conditions at the published circling minimum descent altitude and landing on a runway other than the instrument approach runway.

Description:

The approach to the airport from final fix is accomplished with gear down and approach flaps. Maneuver the aircraft onto the downwind leg at a position not more than published minimum visibility distance from the landing runway. Visual reference with the runway must be maintained throughout the maneuver. When landing is assured, complete the "Before Landing" checklist. Maintain MDA until the aircraft is in a position from which a normal approach to landing can be made. The turn and rate of descent should be adjusted so as to bring the aircraft smoothly in alignment with the runway utilizing a normal glide slope approaching the runway. From this point a normal approach and landing shall be executed. It should be emphasized that excessively banked turns close to the ground are undesirable and should be avoided.

Acceptable Performance Guidelines:

- a. Airspeed +5, -0 Knots.
- b. Altitude +50, -0 feet at MDA.
- c. Bank angle maximum 30 degrees.

Contact and Visual Approach Procedures

Description:

The contact approach is the equivalent of a special VFR approach while on an IFR flight plan. Practice of the contact approach requires that the flying pilot demonstrate his ability to fly the intended path to the airport in VFR conditions identifying prominent landmarks and the possible hazards to navigation along the path and explaining what he would do if he was unable to continue the approach. The last is important since there is, by definition, no missed approach procedure for a contact approach.

Practice of the visual approach procedure is accomplished during the normal landing practice as this is a VFR only procedure.

Acceptable Performance Guidelines:

The flying pilot will navigate to the airport over a path that is free of obstructions and allows the required terrain and obstacle clearance.

Missed Approach Procedures

Objective:

These procedures provide training in the execution of missed approaches in various configurations.

Description:

At the completion of an instrument approach, at either MDA or DH, the instructor will command "Missed Approach." At this time power will be advanced to maximum and pitch attitude adjusted to that which will check descent. As the aircraft accelerates, flaps will be retracted to the setting appropriate for the existing conditions. The pitch attitude will be adjusted for climb and the aircraft accelerated to Vy. The landing gear will be retracted when a positive rate of climb is established and, if necessary, final flap retraction will be accomplished. The appropriate missed approach procedure will be executed. Maximum power should be maintained until at least 500 feet AGL. The above procedures may vary slightly due to the difference in aircraft performance. Many of the aircraft used will have minimum performance and acceleration in the landing configuration; therefore, exact go-around procedures must be used to assure that a successful missed approach can be accomplished.

Acceptable Performance Guidelines:

- a. Maintain positive control of the aircraft.
- b. Airspeed +10, -0.
- c. Heading plus or minus 5 degrees.
- d. Correct sequence of procedures.
- e. Compliance with published missed approach procedures or ATC instructions as appropriate.
- f. Altitude not below MDA or DH as appropriate.

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Emergency Descent

Objective:

This maneuver affords training in recommended procedures for establishing the highest practical rate of descent available during emergency conditions arising from an uncontrollable fire, sudden loss of pressurization, or from any other situation demanding an immediate and rapid descent.

Description:

The primary purpose of this maneuver is to descend the aircraft as soon as practicable to a safe altitude. In order to maintain positive "G" forces and for the purpose of clearing altitudes below, a 30 to 45 degree bank should be established in the initial descent for at least a 90 degree heading change. This maneuver should be performed with the aircraft configured as recommended by the manufacturer.

Performance of this maneuver should strictly adhere to the procedures outlined in the aircraft flight manual. Unless an actual emergency exists, the emergency descent should always be done in daylight, VFR conditions, and never through any cloud layers.

Acceptable Performance Guidelines:

- a. Maintain positive aircraft control.
- b. Do not exceed designated maximum speeds.
- c. Maintain positive "G" forces.

Note: As soon as all prescribed procedures are completed and the descent is established and stabilized, this maneuver will normally be terminated.

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Normal Landing

Objective:

This maneuver provides training through the entire landing traffic pattern, including touchdown and rollout. It is used to develop proper techniques in power and control usage at relatively low airspeeds during the critical phases of final approach and touchdown.

Description:

The "Before landing" checklist will be completed, up to landing gear, before entering the traffic pattern. Unless otherwise directed by ATC, entry to the downwind leg should be midfield at traffic pattern altitude and a 45 degree angle. Speed should be reduced to that compatible with other aircraft in the pattern as practicable.

When downwind opposite the point of touchdown, extend landing gear and complete "Before Landing" Checklist except for landing flaps. Angle of bank should not exceed 30 degrees while in the traffic pattern.

Under normal conditions, landing flaps should not be extended until established on final and the landing is assured. When established on final approach, and after landing flaps are extended, stabilize airspeed to that recommended by the manufacturer. If a recommended airspeed is not furnished by the manufacturer, a speed equal to 1.3 V_{so} should be used. The approach should be planned so the landing will be made in the center of the first one-third of the runway with a smooth transition from approach to landing attitude. Always use a smooth coordinated power reduction in aircraft using power during the approach.

The "After Landing" Checklist will not be accomplished until clear of the runway.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind approaches and landings including airspeeds, configurations, performance, and related safety factors.
- b. Establishes the approach and landing configuration and adjusts the power controls, as required.

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- c. Maintains a stabilized descent angle and the recommended approach airspeed, with gust factor applied, plus or minus 5 Knots.
- d. Notes any obstructions or other hazards in the approach path and landing area, and considers landing performance capability.
- e. Verifies wind condition and makes positive correction for crosswind.
- f. Maintains a precise ground track on final approach.
- g. Recognizes and promptly corrects deviations during approach and landing.
- h. Makes smooth, timely, and precise control application during the transition from approach to landing roundout (flare).
- i. Touches down smoothly at approximate stalling speed, beyond and within 200 feet of a specified point, with no drift and the airplane's longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control and crosswind correction during the after-landing roll.
- k. Completes the after-landing checklist in a timely manner.

Simulated Forced Landings

Description:

A simulated forced landing can be practiced with the aircraft in any configuration. The instructor will announce "forced landing" and check that the power levers are closed. In order to obtain the best glide ratio, the cleanest configuration and best glide speed are normally established as soon as possible. If the airspeed is above the glide speed the flying pilot should maintain altitude, place the aircraft in its cleanest configuration and allow airspeed to dissipate to best glide speed. Altitude permitting, the flying pilot should determine the best landing area available. Many variables including altitude, obstructions, wind direction, landing direction, landing surface, gradient, and landing distance requirements of the aircraft will determine the pattern and approach techniques used to complete the maneuver. The flying pilot should consider landing on a long field crosswind or uphill or downwind, if such a landing would be safer than directly into the wind.

Note: During the glide and approach, the instructor pilot will assure that measures are taken to keep the engines operating normally.

Utilizing any combination of normal gliding maneuvers, from wings level to spirals, the flying pilot is expected to eventually arrive at the normal "key" position at normal traffic pattern altitude for the selected landing area. From this point on the approach is the same as a normal power-off approach allowing the flying pilot to use his previous experience in judging his landing point.

Cockpit check lists are a part of this maneuver. Items appropriate to the aircraft being used will be covered. The flying pilot will perform the memory items and then call for and perform the appropriate check list to insure that all items have been attended to.

Note: It is mandatory that the instructor and flying pilot know before hand who is going to initiate the go-around and who will be flying the aircraft at that time. No simulated forced landing is to be carried below 200' AGL unless a safe landing is assured. Proximity of persons and structures must be considered when descending under 500' AGL.

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Acceptable Performance Guidelines:

Airspeed +10 kts. -0 Kts.

Altitude at key position +200' from normal pattern altitude.

Go-around initiated at 200' altitude from a position where it is obvious that a safe landing could be made, or a landing completed on an approved landing area.

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Landing with Simulated Powerplant Failure

Objective:

This maneuver provides training in accomplishing approach to land (and landing) with a failure of one powerplant.

Description:

a. Conditions of flight:

1. All engine cuts will be in accordance with manufacturer's recommendations.
2. All simulated engine failures will be accomplished with power lever, and feathering will be simulated with zero thrust when less than 2000' above terrain.

b. The maneuver:

1. Due to variations in performance, limitations, etc., of the many light twins, no specific flight path or procedure can be proposed that would be adequate in all engine emergencies.
2. In most light twins, a single engine approach and landing can be accomplished with the flight path and procedures almost identical to a normal approach and landing, with three noteworthy exceptions:

- i. Landing gear and flap selections may need to be delayed depending on conditions.
- ii. Speed on final should not be less than Vyse until the landing is assured; thereafter, at the approach speed commensurate with the flap position until the landing flare.
- iii. Under normal conditions, the landing will be made with full flaps; however, full flaps should not be lowered until the landing is assured. In this configuration, approach speed should be 1.3 Vso.
- iv. If unusual circumstances dictate landing with other than full flaps, the approach speed will be 1.3 Vs1.

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Note: Long flat approaches with high power output on the operating engine and/or excessive threshold speed that results in floating and unnecessary runway use should be avoided.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the procedure used during an approach and landing with an inoperative engine.
- b. Sets the engine controls, reduces drag, and identifies and verifies inoperative engine after simulated engine failure.
- c. Establishes the recommended airspeed and trims the airplane.
- d. Follows the prescribed checklist to verify procedures for securing the inoperative engine and completes pre-landing checklist.
- e. Establishes a bank toward the operating engine as required for best performance.
- f. Maintains proper track on final approach.
- g. Establishes the approach and landing configuration and power.
- h. Maintains a stabilized descent angle and the recommended final approach airspeed until landing is assured. Not less than Vyse.
- i. Touches down smoothly beyond and within 500 feet of a specified point, with no drift and the longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control during after-landing roll.

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Short Field Landings

Objective:

These maneuvers are practiced to develop proficiency in overcoming problems peculiar to marginal operations which may be encountered while landing at short and/or soft fields.

Description:

a. Short Field Landings:

Short field landings should be made from a stabilized final approach in landing configuration. Manufacturer's recommended airspeed should be used with moderately low power and a constant rate of descent. The landing should be accomplished with little or no floating. Upon touchdown, the power levers should be closed immediately accompanied by proper application of brakes to minimize the after-landing roll.

Note: Extreme caution should be exercised when practicing short field landings at minimum speeds. At these speeds, high sink rates may occur in some aircraft requiring excessive altitude and/or power for recovery.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of a short-field approach and landing, including airspeeds, configurations, and related safety factors.
- b. Considers obstructions, landing surface, and wind conditions.
- c. Selects a suitable touchdown point.

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- d. Establishes the recommended short-field approach and landing configuration and adjusts power and pitch, as required.
- e. Maintains a stabilized descent angle, precise control of the descent rate, and recommended airspeed.
- f. Maintains a precise ground track on final approach.
- g. Recognizes and promptly corrects deviations during approach or landing.
- h. Makes smooth, timely, and precise control application during the transition from approach to landing roundout (flare).
- i. Touches down smoothly beyond and within 100 feet of a specified point, no drift, and with the airplane longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control during the after-landing roll.
- k. Applies smooth braking, as necessary, to stop in the shortest distance consistent with safety.
- l. Completes the after-landing checklist in a timely manner.

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Crosswind Landings

Objective:

This maneuver provides training in the more complex control techniques and limitations of the aircraft during landing with crosswind conditions.

Description:

On short final approach, the crab into the wind is changed to a slip into the wind. The force held on the controls is proportionate to the crosswind. The slip must keep the flight path and the fuselage of the aircraft aligned with the runway centerline. As ground contact is made on the wheel into the wind, the controls are gradually moved farther in the same direction to compensate for loss of control effectiveness as speed decreases.

Acceptable Performance Guidelines:

Normal and Crosswind Approaches and Landings

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind approaches and landings including airspeeds, configurations, performance, and related safety factors.
- b. Establishes the approach and landing configuration and adjusts the power controls, as required.
- c. Maintains a stabilized descent angle and the recommended approach airspeed, with gust factor applied, plus or minus 5 Knots.
- d. Notes any obstructions or other hazards in the approach path and landing area, and considers landing performance capability.
- e. Verifies wind condition and makes positive correction for crosswind.
- f. Maintains a precise ground track on final approach.
- g. Recognizes and promptly corrects deviations during approach and landing.
- h. Makes smooth, timely, and precise control application during the transition from approach to landing roundout (flare).
- i. Touches down smoothly at approximate stalling speed, beyond and within 200 feet of a specified point, with no drift and the airplane's longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control and crosswind correction during the after-landing roll.
- k. Completes the after-landing checklist in a timely manner.

No Flap Approach and Landing

Objective:

This maneuver provides training in making approaches and landings with simulated failure of components of the landing flap system.

Description:

No flap landings will be conducted as a normal landing except without flaps and from a speed equal to 1.3 times the power off stall, speed with flaps retracted.

The trainee should be aware that in most aircraft the touchdown will be in a higher than normal nose up attitude, and that the landing roll will be longer due to the loss of drag caused by the no flap condition and higher touchdown speed. The use of brakes may be required as dictated by runway length and surface.

Acceptable Performance Guidelines:

- a. Touchdown is not excessively short of/nor beyond desired point.
- b. Touchdown should be made on centerline of runway.
- c. Airspeed within 1.3 V_{s1} to 1.3 V_{s1} plus 10 at boundary.

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Rejected Landing

Objective:

This maneuver develops an understanding of airplane climb capabilities in the landing configuration.

Description:

This maneuver involves a go-around with both engines operating normally while in the final stages of a landing approach. All phases of the "Before Landing Checklist" will have been completed.

At any time on final approach prior to actual touchdown, the instructor will command "Go-around." This will simulate a landing obstacle such as fire equipment, another aircraft, large animal, etc., moving onto the runway directly into the landing path, or a sudden and violent shift in surface wind. The trainee will immediately apply maximum power and stop the descent. When descent has stopped, the flaps will be positioned for takeoff and aircraft pitch adjusted to avoid altitude loss. Accelerate to Vyse for initial climb.

After positive rate of climb is established, the gear will be retracted and the aircraft will be allowed to accelerate to Vy, and if necessary, final flap retraction will be accomplished.

From this point the maneuver will be conducted in the same manner as a normal takeoff.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of a go-around procedure, including the recognition of the need to go around, the importance of making a timely decision, the use of recommended airspeeds, the drag effect of wing flaps and landing gear, and the importance of properly coping with undesirable pitch and yaw tendencies.
- b. Makes a timely decision to go around from a rejected landing.
- c. Applies takeoff power and establishes the precise pitch attitude required to attain the recommended airspeed.
- d. Retracts the wing flaps, as recommended, or at a safe altitude, and establishes.
- e. Retracts the landing gear, after a positive rate of climb has been established.
- f. Trims the airplane and climbs at, plus or minus 5 Knots, and maintains the proper ground track in the traffic pattern.

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Taxiing

Objective:

This procedure provides training for smooth, safe, and practical taxi operations.

Description:

When ready to taxi, release the parking brake and as aircraft begins to move forward test brakes by depressing each brake pedal. Taxi at a moderate speed and avoid making fast turns that put abnormal side loads on the landing gear. Maximum speed for taxiing should be that which would allow the aircraft to be safely controlled in the event of a brake failure. Unless passing close to another aircraft or object, the nose of the aircraft should always follow the painted taxi lines.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining all aspects of safe taxi procedures including the effect of wind on the airplane during taxiing.
- b. Follows the prescribed taxi checklist, if pertinent.
- c. Performs a brake check immediately after the airplane begins movement, and thereafter uses proper braking technique.
- d. Complies with markings, signals and clearances, and follows the proper taxi route.
- e. Demonstrates proficiency in maintaining correct and positive control of the airplane's direction and speed considering existing conditions.
- f. Positions flight controls properly considering wind.
- g. Maintains awareness of the location and movement of all other vehicles along the taxi path and in the traffic pattern.
- h. Applies right-of-way rules and provides adequate spacing.
- I. Avoids creating hazards to persons or property.

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Normal Takeoff

Objective:

This maneuver describes methods and techniques to be employed during a normal takeoff.

Description:

The flying pilot shall brief the instructor pilot on takeoff procedures prior to clearance for takeoff. This briefing should consist of at least the following; Minimum Control Airspeed - V_{mc} , Best Single Engine Rate of Climb speed - V_{yse} , Best All Engine Climb speed - V_y , and what procedures will be followed if an engine failure occurs prior to V_{mc} .

When the aircraft is taxied onto the runway the transponder will be turned on, the magnetic compass and the heading indicator will be checked to note runway alignment, and the heading bug will be set to the climb out heading. During takeoff roll, monitor engine instruments and use whatever control displacement is necessary to compensate for crosswind conditions. Lift off should be made at no less than $V_{mc}+5$. After liftoff, allow aircraft to accelerate to Best Rate of Climb speed, and climb to 500 feet AGL using this speed and takeoff power. Upon reaching 500 feet AGL, accelerate to cruise climb speed and reduce to climb power.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind takeoffs and climbs including airspeeds, configurations, and emergency procedures.
- b. Adjusts the condition lever as recommended for the existing conditions.
- c. Notes any obstruction or other hazards in the takeoff path and reviews takeoff performance.
- d. Verifies wind condition.
- e. Aligns the airplane on the runway centerline.
- f. Applies aileron deflection in the proper direction, as necessary.
- g. Advances the power levers smoothly and positively to maximum allowable power.
- h. Checks engine instruments.

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- I. Maintains positive directional control on the runway centerline.
- j. Adjust aileron deflection during acceleration, as necessary.
- k. Rotates at the airspeed to attain lift-off at $V_{mc}+5$ or the recommended lift-off airspeed and establishes wind- effect correction, as necessary.
- l. Establishes the single-engine, best rate-of-climb pitch attitude and accelerates to V_y .
- m. Establishes the all-engine best rate-of-climb pitch attitude when reaching V_y and maintains V_y , or V_y+10 to avoid high pitch angles.
- n. Retracts the wing flaps as recommended or at a safe altitude.
- o. Retracts the landing gear after a positive rate of climb has been established and a safe landing cannot be accomplished on the remaining runway, or as recommended.
- p. Climbs at V_y to 400 feet or to a safe maneuvering altitude.
- q. Maintains takeoff power to a safe maneuvering altitude and sets desired power.
- r. Uses noise abatement procedures, as required.

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Rejected Takeoff

Objective:

This maneuver provides training in positive aircraft control for stopping the aircraft if a malfunction occurs during the initial takeoff phase.

Description:

Practice of rejected takeoffs will be initiated either by a simulated loss of engine power initiated by the instructor pilot or by the instructor pilot's oral identification of a simulated malfunction. The flying pilot will reduce both power levers to idle and employ normal stopping procedures. Rejected takeoffs in multiengine aircraft shall be practiced at speeds that are no more than 50% of Vmc. If not contrary to the manufacturer's recommendation this may be accomplished by reducing power to idle with the power lever.

Acceptable Performance Guidelines:

- a. Use of proper techniques.
- b. Proper sequence of procedures.
- c. Positive directional control of aircraft.

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Short Field Takeoffs *

Objective:

These maneuvers provide practice to develop proficiency in overcoming problems peculiar to marginal operations which may be encountered while taking off at short fields.

Description:

It is impossible to specify an exact procedure to be used that would be correct in any given situation involving the need for a short field takeoff.

- a. Short Field Takeoff: Prime consideration is given to operating the aircraft in such a manner that will result in the greatest altitude gain in a given distance; i.e., over a 50 foot obstacle.

Execution of the short field takeoff in a training environment should be as follows:

The short field takeoff will be made the same as a normal takeoff with the following exception. As the airspeed reaches the Best Angle of Climb speed, or $V_{mc}+5$, whichever is higher, the nose is rotated to an angle of attack that will cause the aircraft to break ground and climb at that specified speed. At an altitude of approximately 50 feet and after passing over a simulated 50 foot obstacle, the nose is lowered to allow that airspeed to increase to Best all engine Rate of Climb speed. Upon reaching 500 feet AGL accelerate to Cruise Climb speed and reduce to climb power. The manufacturers recommended flap setting, power settings, and speeds will be used with the exception of best angle of climb speed. If published best angle of climb speed is less than $V_{mc}+5$, $V_{mc}+5$ will be used. The use of any climb speed less than $V_{mc}+5$ should be avoided in the training environment.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of a short-field takeoff and climb profile including the significance of appropriate airspeeds, configurations, emergency procedures, and expected performance for existing operating conditions.

*NOTE: King Air aircraft at Royal Air Freight are operated only from hard surface runways.

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- b. Selects the recommended wing flap setting.
- c. Adjusts the condition levers as recommended for the existing conditions.
- d. Reviews takeoff performance capabilities considering obstructions and conditions affecting the airplanes performance.
- e. Positions the airplane for maximum runway availability and aligns it with the runway centerline.
- f. Advances power levers smoothly and positively to maximum allowable power.
- g. Checks engine instruments.
- h. Adjusts the pitch attitude to attain maximum rate of acceleration.
- i. Maintains positive directional control on the runway centerline.
- j. Rotates at the airspeed to attain lift-off at $V_{mc}+5$, V_x , or at the recommended airspeed, whichever is greater.
- k. Climbs at V_x , or the recommended airspeed, whichever is greater until obstacle is cleared, or to at least 50 feet above the surface, then accelerates to V_y and maintains V_y , or V_y+10 to avoid high pitch angles.
- l. Retracts the landing gear after a positive rate of climb has been established and a safe landing cannot be made on the remaining runway or as recommended.
- m. Retracts the wing flaps as recommended or at a safe altitude.
- n. Climbs at V_y to 400 feet AGL or to a safe maneuvering altitude.
- o. Maintains takeoff power to a safe maneuvering altitude and sets desired power.
- p. Uses noise abatement procedures as required.
- q. Establishes and maintains a cruise climb airspeed plus or minus 5 Knots.
- r. Maintains a straight track over the extended runway centerline until a turn is required.
- s. Complete the after-takeoff checklist.

Crosswind Takeoffs

Objective:

This maneuver provides training in the more complex control techniques and limitations of the aircraft during takeoff with crosswind conditions.

Description:

Careful consideration should be given to the effects of a strong crosswind before even taxiing to the takeoff position. Narrow wheel treads, high center of gravity and light weight when combined, result in a aircraft easily turned over in gusty cross and tail winds. At the start of the takeoff, the controls are displaced as though the airplane was being slipped into the wind. As the nose wheel comes off the ground, the rudder is used to prevent crabbing into the wind. While the aircraft is becoming airborne, the wheel into the wind leaves the ground last. If these corrections were not made, gusty winds could cause the plane to skip with possible landing gear failure. The aircraft should remain in slipping flight until well clear of the ground and then allow the aircraft to turn and assume a wind correction angle to continue the flight path straight out the extended runway centerline.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind takeoffs and climbs including airspeeds, configurations, and emergency procedures.
- b. Adjusts the condition levers as recommended for the existing conditions.
- c. Notes any obstruction or other hazards in the takeoff path and reviews takeoff performance.
- d. Verifies wind condition.
- e. Aligns the airplane on the runway centerline.
- f. Applies aileron deflection in the proper direction as necessary.

- g. Advances the power levers smoothly and positively to maximum allowable power.
- h. Checks engine instruments.
- I. Maintains positive directional control on the runway centerline.
- j. Adjust aileron deflection during acceleration, as necessary.
- k. Rotates at the airspeed to attain lift-off at $V_{mc}+5$, or the recommended lift-off airspeed and establishes wind- effect correction, as necessary.
- l. Establishes the single-engine, best rate-of-climb pitch attitude and accelerates to V_y .
- m. Establishes the all-engine best rate-of-climb pitch attitude when reaching V_y and maintains V_y , or V_y+10 to avoid high pitch angles.
- n. Retracts the landing gear after a positive rate of climb has been established and a safe landing cannot be accomplished on the remaining runway, or as recommended.
- o. Retracts the wing flaps as recommended or at safe altitude.
- p. Climbs at V_y to 400 feet or to a safe maneuvering altitude.
- q. Maintains takeoff power to a safe maneuvering altitude and sets desired power.
- r. Uses noise abatement procedures, as required.

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Lower Than Standard IFR Takeoffs

Objective:

To enable the pilot to determine when a lower than standard takeoff can be made and provide the pilot training in reduced visibility takeoffs.

Description:

The pilot will brief the non-flying pilot to insure mutual understanding of takeoff procedures to be used. The pilot will concentrate primarily on the aircraft instruments while the non-flying pilot monitors outside centerline indications. Special attention should be given to the thorough use of checklist procedures. Smooth positive power lever application and proper power settings will be emphasized. The takeoff run will be down the centerline with directional control maintained primarily by nose wheel steering during the early phase of takeoff, then rudder rudder control as required will be used. Differential braking should not be necessary except in emergencies.

All pilots requiring instrument privileges will be trained and tested for this procedure using a view limiting device from the time of initial runway alignment onward.

Acceptable Performance Guidelines:

- a. Pilot must determine lower than standard takeoff can be accomplished at that airport and review the runway markings/lights for the departure runway.
- b. Pilot should have an appropriate approach chart for the departure/takeoff alternate airports in place with proper radio frequencies set in the event of an emergency immediately after departure.
- c. Maintain runway centerline during takeoff roll by reference to centerline markings and/or lights.
- d. After normal rotation, pilot should establish normal climb utilizing localizer course for runway alignment until reaching a safe altitude (approximately 400 AGL).
- e. Pilot should maintain heading plus or minus 10 degrees and assigned climb speed plus or minus 5 Knots during climb to assigned altitude.

Note: Refer to AIM - Pilot should review runway markings and lighting.

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Engine Failure on Takeoff Before Vmc

Objective:

To enable the pilot to identify an engine failure during takeoff prior to reaching Vmc and accomplish steps necessary to abort the takeoff.

Description:

During a normal takeoff, the instructor will simulate an engine failure by retarding a power lever to idle prior to reaching a speed of 50 percent Vmc. The pilot will abort the takeoff.

It is important that the instructor review with the pilot, prior to the flight, how an engine failure will be simulated and insure that the pilot and instructor have agreed upon the procedures prior to the flight.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the reasons for the procedures used for engine failure during takeoff before Vmc including related safety factors.
- b. Aligns the airplane on the runway centerline.
- c. Advances the power levers smoothly to maximum allowable power.
- d. Checks engine instruments.
- e. Maintains directional control on the runway centerline.
- f. Closes power levers smoothly and promptly when engine failure occurs.
- g. Maintains directional control and applies braking, as necessary.

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Engine Failure on Takeoff After Liftoff

Objective:

To enable the pilot to identify an engine failure after lift-off and accomplish the appropriate procedures to insure continued flight.

Description:

Upon reaching a safe altitude with gear and flaps retracted, the instructor will simulate an engine failure by reducing the power lever to idle. The pilot should accomplish the proper engine failure procedures. Instructor will advance the power lever to a zero thrust power setting after the pilot has identified and verified the failed engine and accomplished the proper procedures for feathering and securing the engine.

It is important that the instructor review with the pilot, prior to the flight, how an engine failure will be simulated and insure that the pilot and instructor have agreed upon the procedures prior to the flight.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the reasons for the procedures used if engine failure occurs after lift-off including related safety factors.
- b. Recognizes engine failure promptly.
- c. Sets the engine controls, reduces drag, and identifies and verifies the inoperative engine after simulated engine failure.
- d. Establishes Vyse if there are no obstructions; if obstructions are present, establishes Vxse or Vmc+5, whichever is greater, until obstructions are cleared, then Vyse and trims the airplane.
- e. Maintains positive control of the airplane.
- f. Follows the prescribed checklist to verify the accomplishment of procedures for securing the inoperative engine.

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- g. Establishes a bank (5 degrees max.) toward the operating engine as required for best performance.
- h. Recognizes the airplane's performance capability; if climb or level flight is impossible, maintains Vyse and initiates an approach to the most suitable landing area.
- I. Attempts to determine the reason for the engine malfunction.
- j. Monitors the operating engine and makes necessary adjustments.
- k. Maintains the specified heading, plus or minus 10 degrees, and the specified airspeed, plus or minus 5 Knots.
- l. Divides attention between coordinated airplane control, flight path, and orientation.
- m. Contacts the appropriate facility for assistance, if necessary.

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Climbs and Climbing Turns

Objective:

These maneuvers provide practice in controlling the aircraft during a climb with normal angles of bank while scanning the area for other aircraft.

Description:

Climbs and climbing turns will be made in clean and takeoff configurations with climb power. Climbs will demonstrate the performance and may reveal heating problems at V_x , V_y , V_{xse} , V_{yse} , and in obstacle clearance configuration.

Climbing turns to predetermined headings up to 360 degrees will be practiced. In climbing turns, angles of bank to 45 degrees can be used to demonstrate loss of performance with rise in "g" forces.

Acceptable Performance Guidelines:

- a. Airspeed plus or minus 5 Knots.
- b. Recovery to assigned heading within plus or minus 5 degrees.
- c. Power control shall be smooth and within limits.
- d. Engine temperatures within limits.
- e. Accomplishes coordinated climbs and climbing turns as specified by the instructor.

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Shallow and Medium Turns

Objective:

These maneuvers provide practice in controlling the aircraft during normal angles of bank.

Description:

Shallow turns involve bank angles up to approximately 25 degrees. At these angles, the inherent stability of the aircraft tends to return it to level flight.

Medium turns involve banks of approximately 25 degrees to 45 degrees. The aircraft tends to maintain this angle without further application of aileron control.

The trainee's instruction will include the following items:

- a. Checking for traffic before starting the turns.
- b. Effect of speed on control forces and responses.
- c. Effect of "g" forces in a turn.
- d. Turns in the clean configuration at cruise speed, and the takeoff and landing configuration at V_x .

Acceptable Performance Guidelines:

- a. Airspeed plus or minus 5 Knots.
- b. Bank within plus or minus 5 degrees of desired angle.
- c. Altitude within plus or minus 50' shallow turn.
- d. Altitude within plus or minus 100' medium turn.
- e. Recovery to assigned heading within plus or minus 5 degrees shallow turn.
- f. Recovery to assigned heading within plus or minus 10 degrees medium turn.
- g. Accomplishes coordinated turns as specified by the instructor.

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Steep 360 Degree Power Turns

Description:

The flying pilot will enter a steep bank attitude of at least 45 degrees to execute 360 degrees of turn. When entry airspeed is not recommended by the manufacturer, normal cruise airspeed or maneuvering speed--whichever is lower--will be used. Steep turns should be practiced, both left and right, and by rolling directly from one 360 degree turn into the other. In low powered airplanes, additional power should be added smoothly as the turn is established in order to maintain a stable airspeed. Entry and rollout rates should be smooth and executed with proper coordination.

Acceptable Performance Guidelines:

- a. Airspeed +/-10 Knots.
- b. Altitude within +/-100'.
- c. Bank within +/-5 degrees.
- d. Heading +/-10 degrees of entry heading.
- e. Performance also will be judged on the basis of coordination and smoothness.

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Approaches to Stall

Objective:

These maneuvers afford familiarization with the airplane handling characteristics in the initial stall buffet region and provide training in stall recognition and proper recovery techniques.

Description:

Approaches to stall should be practiced at a minimum altitude of 3000 feet AGL. Stalls will be entered with at least 65% power; with power reduced on all engines; and in landing and in cruising configurations. Stalls should be entered by trimming the aircraft to either 1.5 V_{SO} or 1.5 V_{S1} whichever is appropriate, and smoothly increasing the angle of attack until the first physical indication of the stall occurs. Recovery should be initiated at the first physical indication of a stall; such as uncontrollable pitching, buffeting, rapid decay of control effectiveness, or the application of full up elevator without producing further loss of altitude.

Note: No stalls will be practiced with any engine cut off and the other engine(s) developing effective power.

Acceptable Performance Guidelines:

Imminent Stalls, Gear Up and Flaps Up

- a. Exhibits commercial pilot knowledge by explaining the aerodynamic factors associated with stalls, gear up and flaps up including changes in stall speed in various configurations, power setting, pitch attitudes, weights, and bank angles, and the procedure for recovery.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Stabilizes the airplane at approach airspeed in level flight with a gear-up, flaps-up configuration and appropriate power setting.
- d. Establishes straight-and-level flight and level 20 degrees bank turns (plus or minus 10 degrees) and adjusts pitch attitude and power as necessary to induce an imminent stall while maintaining altitude (+150 feet, -50 feet).
- e. Recognizes imminent stalls at the first indication of buffeting or decay of control effectiveness and recovers with proper power and control application.
- f. Returns to airspeed and configuration as specified by the examiner.
- g. Avoids full stall, excessive pitch change, excessive altitude loss, or flight below 3,000 feet AGL.

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Imminent Stalls, Gear Down and Approach Flaps

- a. Exhibits commercial pilot knowledge by explaining the aerodynamic factors associated with stalls, gear down and approach flaps, including changes in stall speed in various configurations, power settings, pitch attitudes, weights, and bank angles, and the procedure for recovery.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Stabilizes the airplane at approach airspeed in level flight with gear down and approach flap configuration and appropriate power setting.
- d. Establishes straight-and-level flight and level 20 degrees bank turns, plus or minus 10 degrees, and adjusts pitch attitude and power as necessary to induce an imminent stall while maintaining altitude, +100 feet, -50 feet.
- e. Recognizes imminent stalls at the first indication of buffeting or decay of control effectiveness and recovers with proper power and control application.
- f. Returns to airspeed and configuration as specified by the examiner.
- g. Avoids full stalls, excessive pitch change, excessive altitude loss, or flight below 3,000 feet AGL.

Imminent Stalls, Gear Down and Full Flaps

- a. Exhibits commercial pilot knowledge by explaining the aerodynamic factors associated with stalls, gear down and full flaps, including changes in stall speed in various configurations, power settings, pitch attitudes, weights, and bank angles, and the procedure for recovery.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Stabilize the airplane at approach airspeed in level flight with gear down and full flaps configuration and appropriate power setting.
- d. Establishes straight-and-level flight and level 20 degree bank turns, plus or minus 10 degrees, and adjusts pitch attitude and power as necessary to induce an imminent stall while maintaining altitude, +100 feet -50 feet.
- e. Recognizes imminent stalls at the first indication of buffeting or decay of control effectiveness and recovers with proper power and control application.
- f. Returns to airspeed and configuration as specified by the examiner.
- g. Avoids full stalls, excessive pitch change, excessive altitude loss, or flight below 3,000 feet AGL.

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Maneuvering at Minimum Controllable Speeds

Objective:

These maneuvers demonstrate the degree of controllability available while in close proximity to the prestall buffet. They provide the opportunity to practice control techniques which are most beneficial in the low speed regimes encountered during takeoffs, landings, and power plant failure emergency situations.

Description:

Maneuvering at minimum speed is practiced in both cruise and landing configuration, and will consist of straight flight, turns, climbs, and descents.

By definition the term "Flight at minimum controllable airspeed" means - a speed at which any further increase in angle of attack, or increase in back pressure will cause an immediate physical indication of a stall.

Stall warning devices on U.S. Certificated aircraft are required by Regulation to be activated "At least 5, but not more than the greater of 10 Knots or 15% of the stalling speed, and must continue until the stall occurs." In view of the above requirement, flight at minimum controllable airspeed will result in activation of the stall warning device.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the flight characteristics and controllability associated with maneuvering during slow flight.
- b. Selects an entry altitude that will allow the maneuver to be performed no lower than 3,000 feet AGL.
- c. Establishes and maintains slow flight, specified gear position, various flap settings and angle of bank, during straight-and-level flight and level turns.
- d. Maintains the specified altitude, plus or minus 100 feet.
- e. Maintains the specified heading during straight flight, plus or minus 10 degrees.
- f. Maintains the specified bank angle, plus or minus 10 degrees, during turning flight.
- g. Maintains an airspeed of 5 Knots (plus or minus 5 Knots) above stall speed or Vmc, whichever is greater.

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Propeller Feathering and Unfeathering

Objective:

To develop in the trainee the proper procedures and proficiency for feathering and unfeathering an inoperative engine.

Description:

a. Feathering:

At a safe altitude (minimum 3000' above terrain) and within landing distance of an adequate airport, an engine will be cut with condition lever.

The following procedures will then be followed:

1. Maintain aircraft control.
2. Condition levers as required; both power levers positioned for maximum power.
3. Gear, and Flaps as required.
4. Determine which engine failed, and verify by engine instruments.
5. If unable to remedy cause of failure, feather.
6. Turn towards airport and contact tower.
7. Clean up dead engine in accordance with manufacturers approved procedures and check for fire.
8. Monitor engine instruments on operating engine, and adjust power, and speed as necessary.
9. Maintain altitude with airspeed at least Vyse or above if possible.

- b. Unfeathering: Unfeathering will be accomplished in accordance with the engine restart in-flight checklist.

Acceptable Performance Guidelines:

Proficiency will be evaluated on the basis of maintaining desired heading, airspeed and altitude; prompt identification of a failed engine; and the accuracy of shutdown and restart procedures.

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Maneuvering with Power plant Inoperative

Objective:

This maneuver provides practice in properly maintaining aircraft control during one of the more critical in-flight emergencies. It develops a knowledge of aircraft characteristics under adverse conditions, together with control applications necessary to achieve a maximum margin of safety.

Description:

With one engine feathered or set at zero thrust power, the trainee will make turns into and away from inoperative engine using up to 30 degrees of bank. Power will be used as required to maintain altitude and/or airspeed.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the flight characteristics and controllability associated with maneuvering with one engine inoperative.
- b. Sets the engine controls, reduces drag, identifies and verifies the inoperative engine after simulated engine failure.
- c. Attains the best engine inoperative airspeed and trims the airplane.
- d. Maintains control of the airplane.
- e. Attempts to determine the reason for the engine malfunction.
- f. Follows the prescribed checklist to verify procedures for securing the inoperative engine.
- g. Establishes a bank toward the operating engine, as necessary, for best performance.
- h. Turns toward the nearest suitable airport.
- i. Monitors the operating engine and makes necessary adjustments.
- j. Demonstrates coordinated flight with one engine inoperative (propeller feathered, if possible) including-
 1. straight-and-level flight.
 2. turns in both directions.
 3. descents to assigned altitudes.
 4. climb to assigned altitudes, if airplane is capable of climbs under existing conditions.
- k. Maintains the specified altitude, plus or minus 100 feet, when a constant altitude is specified, and levels off from climbs and descents, at specified altitudes, plus or minus 100 feet.

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- l. Maintains the specified heading during straight flight, plus or minus 10 degrees.
- m. Maintains the specified bank angle, plus or minus 10 degrees, during turns.
- n. Divides attention between coordinated control, flight path, and orientation.
- o. Demonstrates engine restart in accordance with prescribed procedures.

Vmc Demonstrations

Objective:

Provide the trainee with an understanding of Vmc and its effect on aircraft operation.

Description:

- a. Vmc is the minimum speed at which an airplane is controllable with one engine windmilling and the other at takeoff power with the aircraft in the most adverse configuration. For Vmc demonstrations, the aircraft will be flown as nearly as practicable under the following conditions:

At highest altitude where takeoff power can be developed, however, at no time below 3000 feet above the ground; landing gear retracted; flaps at takeoff setting; center of gravity at the aft limit; critical engine windmilling and takeoff power on operating engine.

Note: Since Vmc is a function of power it will be possible on any light twin to attempt this demonstration at an altitude where the aircraft will reach stall speed prior to Vmc.

- b. The Vmc demonstration is entered with the aircraft configured as above at an airspeed between Single Engine Best Angle of Climb speed, and Single Engine Best Rate of Climb speed. Airspeed is reduced at one mph per second. Rudder may be used as required to full deflection, but aileron is limited to that which produces a maximum of 5 degrees wing down into the operating engine. When a constant heading can no longer be maintained, NOTE THE AIRSPEED. Effect a recovery to normal flight by lowering the nose and reducing power on the operative engine at the same time.

Note: Rapid rolling tendencies may develop if the airspeed reduction is too abrupt or altitude is such that the aircraft stalls before reaching Vmc. In this event immediate reduction of power on the operating engine may be required to effect a prompt recovery.

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Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the causes of loss of directional control at airspeeds less than Vmc minimum engine inoperative control speed, the factors affecting Vmc, and the safe recovery procedures.
- b. Selects an entry altitude that will allow recoveries to be completed no lower than 3,000 feet AGL.
- c. Establishes the airplane configuration with-
 1. propeller set to high RPM.
 2. landing gear retracted.
 3. flaps set in takeoff position
 4. power on operating engine set to takeoff or maximum available power.
 5. trim set for takeoff.
 6. power on the critical engine reduced to idle (avoid abrupt power reduction).
- d. Establishes a single-engine climb attitude (inoperative engine propeller windmilling) with the airspeed representative of that following a normal takeoff.
- e. Establishes a bank toward the operating engine, as necessary, for the best performance.
- f. Reduces the airspeed slowly with the elevators while applying rudder to maintain directional control until all available rudder is applied.
- g. Recognizes the indications of loss of directional control.
- h. Recovers promptly by reducing the angle of attack to regain control and reduce power as necessary on the operating engine sufficiently to maintain control with minimum loss of altitude.
- I. Recovers to the entry heading, plus or minus 10 degrees.

Unusual Attitude Recovery

Description:

These are not normally practiced. The key to recovery is not how you got there but where you go from here. As soon as an unusual attitude is detected, the recovery should be initiated primarily by reference to the airspeed indicator, altimeter, vertical-speed indicator, and turn-and-slip indicator. First bank attitude for wings level then pitch to nose level is generally the best technique. As the rate of movement of altimeter and airspeed indicator needles decreases, the attitude is approaching level flight. When the needles stop and reverse direction, the aircraft is passing through level flight. A practiced cross-check is the best insurance policy.

Acceptable Performance Standards:

Proper sequence of recovery as addressed above.
No exceeding any limits.
No secondary stalls, or spins.

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Instrument Holding Procedures

Objective:

This maneuver provides practice in applying instrument holding procedures.

Description:

Decelerate to holding airspeed before reaching the holding fix. Unless specified by the aircraft manufacturer, holding speed should be the minimum consistent with good aircraft control. This lower speed will require less power and allow prolonged holding and fuel economy.

Procedures for holding patterns and recommended entry procedures outlined in Part I of the Airman's Information Manual will be used.

Acceptable Performance Guidelines:

- a. Adheres to holding procedures as listed in the Airman's Information Manual.
- b. Altitude plus or minus 100 feet while holding.
- c. Airspeed plus or minus 10 Knots.

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Instrument Approach Briefing

Description:

The briefing consists of the pilot reviewing the type of approach, minimums, missed approach procedure, and expected required calls (altitudes, times, airport in sight or not in sight, minimums and deviations).

Acceptable Performance Guidelines:

The approach briefing shall be presented as required.

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ILS Approaches

Objective:

This maneuver affords practice in terminal area arrivals utilizing the ILS for the final approach portion.

Description:

Normal ATC procedures will be followed using the appropriate ATC and navigational facilities. The instructor pilot or ATC will clear the trainee for a front course approach. The localizer frequency will be set and identified on the appropriate NAV receiver with front course heading set on the OBS. The marker beacon should be turned on, the ADF turned on and tuned to proper frequency, and identified and functioning. The second VHF NAV receiver, if available, should be tuned and identified as necessary to provide fix points along the approach course, if applicable, or also be tuned to the localizer being used, or for missed approach maneuvering. The approach checklist should be completed during the intermediate approach segment, but no later than before passing the outer marker outbound.

Prior to reaching the final approach fix inbound, the trainee shall verbally verify the field elevation, decision height, and missed approach procedures. As the glide slope is intercepted, the before landing checklist will be completed with the exception of landing flaps, which may be delayed until the landing is assured. After passing the final fix, the approach airspeed should be maintained. At decision height, the trainee will continue the approach and land with hood removed or execute a missed approach as directed by the instructor pilot.

Acceptable Performance Guidelines:

The trainee will comply with ATC or instructors instructions, and fly the airplane in a precise coordinated manner. The following standards are considered acceptable:

- a. Exhibits adequate knowledge of the elements of an ILS instrument approach procedure.
- b. Selects and complies with the appropriate ILS instrument approach procedure to be performed.
- c. Establishes two-way communication with ATC, as appropriate to the phase of flight or approach segment, and uses proper radio communications phraseology and technique.

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- d. Selects, tunes, identifies, and confirms the operational status of ground and aircraft navigation equipment to be used for the approach procedure.
- e. Complies with all clearances issued by ATC or the instructor pilot.
- f. Advises ATC or the instructor pilot anytime the aircraft is unable to comply with a clearance.
- g. Establishes the appropriate aircraft configuration and airspeed, considering turbulence and wind shear, and completes the aircraft checklist items appropriate to the phase of flight.
- h. Maintains, prior to beginning the final approach segment, desired altitude within 100 feet, heading or course within 10 degrees, and airspeed within 10 knots.
- i. Applies the necessary adjustments to the published DH and visibility criteria for the aircraft approach category when required, such as -
 - 1. FDC and Class II NOTAMs.
 - 2. inoperative aircraft and ground navigation equipment.
 - 3. inoperative visual aids associated with the landing environment.
 - 4. National Weather Service (NWS) reporting factors and criteria.
- j. Establishes an initial rate of descent at the point where the electronic glide slope is intercepted, which approximates that required for the aircraft to follow the glide slope.
- k. Allows, while on the final approach segment, no more than three-quarter-scale deflection of either the localizer or glide slope indications, and maintains the desired airspeed within 10 knots.
- l. Avoids descent below the DH before initiating a missed approach procedure or transitioning to a normal landing.
- m. Initiates immediately the missed approach procedure when, at the DH, the required visual references for the intended runway are not distinctly visible and identifiable.
- n. Transitions to a normal landing approach when the aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers.

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Localizer (LOC), Back Course/DME

Objective:

This maneuver affords practice in terminal area arrivals utilizing the localizer in both front course, as well as back course approaches, in conjunction with the use of a DME for distances inbound in lieu of marker beacons or compass locators.

Description:

The instructor and trainee will first assure that an approved approach chart is available for this maneuver. ATC or the instructor pilot will clear the trainee for a specific LOC or LOC Back Course approach. The primary localizer approach frequency will be tuned in to assure proper localizer needle function. Since each DME approach is different, close reference will be made to the approach chart for proper frequencies and distances. Generally, a VOR is also identified whereas a radial from that VOR can also be utilized to verify the readings from the DME. Therefore, it is advisable to tune the secondary receiver to the frequency and turn the OBS to the radial indicated, especially where the pilot's decision areas are located. Remember, the approach charts where the use of DME are involved show a DME distance and an actual distance. This is caused by the off centerline locations of the VORLOC being used. The before landing checklist, up to the landing gear down and landing flaps, will be accomplished prior to crossing the DME position or VOR intersection indicated on the chart. This is called a position fix.

The standard procedure is to descend from the position fix to the decision height, level off and continue at the DH altitude until the missed approach point (MAP) is reached. If the approach lights or runway lights are not in sight at this point, a missed approach will be made. NOTE: On a back course approach, the localizer needle is reversed unless the radio equipment being used has a back course needle reversing mode. Regardless, you must disregard all glide slope indications on a back course approach. Full deflection of the localizer needle in either case requires an immediate call to the tower and a missed approach.

The position fix can be identified by the VOR radial indicated on the approach chart and/or the DME distance indicated on the approach chart.

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Prior to crossing the position fix inbound, the trainee will verify field elevation, decision height, missed approach procedures, and time from outer marker to missed approach. Time over the position will be noted while holding the localizer centered.

The before landing checklist will be completed with landing gear down and flaps set in landing configuration.

Acceptable Performance Guidelines:

The trainee will comply with the recommended procedures and maneuvers in a smooth, coordinated manner. The following are considered acceptable:

- a. Make the approach within the acceptable needle deflection on the localizer.
- b. Altitude, +50 feet, -0 feet at MDA.
- c. Airspeed, +/- 5 knots from position fix inbound.

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VOR Approaches

Objective:

This maneuver affords practice in terminal area arrivals utilizing the VOR for the final approach portion.

Description:

ATC or the instructor pilot will clear the trainee for a specific VOR approach. The primary VHF navigational receiver to be used will be properly tuned, identified, and course selector set for the approach. The number two navigational receiver is to be used to identify intersections, missed approach point, or as a backup for the number one receiver, it also will be properly tuned.

The approach checklist should be accomplished immediately prior to commencing the approach to reduce pilot workload and allow concentration on maneuvering the aircraft for the approach. The landing checklist may be accomplished at any time during the approach with the exception of landing gear and flaps. Prior to the final approach fix, the trainee will verify field elevation, MDA, time to missed approach, and missed approach procedures.

Upon passing the final approach fix, begin descent to MDA or step down fix, if applicable. Landing gear should be extended at the final approach fix inbound. Landing flaps may be delayed until landing is assured.

At MDA and appropriate time, the trainee will advise that the airport should be in sight. The instructor will advise that a landing or missed approach be executed.

Two variations of the VOR approach now exist. They are the DME arc to final approach course and the Area Navigation approach. The DME arc to final approach is accomplished by flying an arc around the VORTAC at a specified distance until intercepting the final approach course.

The RNAV approach is accomplished in the same manner as the normal VOR approach, but utilizes waypoints in lieu of the actual VORTAC station. This approach requires the use of special on-board RNAV equipment and special RNAV approaches are published. Unless the RNAV equipment is approved, there will be no RNAV approaches conducted during actual instrument conditions.

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Acceptable Performance Guidelines:

The trainee will comply with ATC and published procedures. The aircraft will be operated in a smooth coordinated manner. Proper tuning and setting of the radios should be accomplished and no full scale deflections of the CDI during final approach are acceptable. Standards are as follows:

- a. Exhibits adequate knowledge of the elements of a VOR/VORTAC instrument approach procedure.
- b. Selects and complies with the appropriate VOR/VORTAC instrument approach procedure to be performed.
- c. Establishes two-way communications with ATC, as appropriate, to the phase of flight or approach segment, and uses proper radio communications phraseology and technique.
- d. Selects, tunes, identifies, and confirms the operational status of ground and aircraft navigational equipment to be used for the approach procedure.
- e. Complies with all clearances issued by ATC or the instructor pilot.
- f. Recognizes if heading indicator and/or attitude indicator is inaccurate or inoperative, advises controller, and takes appropriate action.
- g. Advises ATC or the instructor pilot anytime the aircraft is unable to comply with a clearance.
- h. Establishes the appropriate aircraft configuration and airspeed considering turbulence and wind shear, and completes the aircraft checklist items appropriate to the phase of the flight.
- i. Maintains, prior to beginning the final approach segment, altitude within 100 feet, heading within 10 degrees and allows less than full-scale deflection of the CDI or 10 degrees in the case of RMI, and maintains airspeed within 10 knots.
- j. Applies the necessary adjustments to the published MDA and visibility criteria for the aircraft approach category when required, such as -
 1. FDC and Class II NOTAMS.
 2. Inoperative aircraft and ground navigation equipment.

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- 3. Inoperative visual aids associated with the landing environment.
- 4. National Weather Service (NWS) reporting factors and criteria.
- k. Establishes a rate of descent and track that will ensure arrival at the MDA prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made at a normal rate using normal maneuvers.
- l. Allows, while on the final approach segment, no more than a three-quarter-scale deflection of the CDI or within 10 degrees in case of an RMI, and maintains airspeed within 10 knots.
- m. Maintains the MDA, when reached, within +100 feet, -0 feet to the MAP.
- n. Executes the missed approach procedure when the required visual references for the intended runway are not distinctly visible and identifiable at the MAP.
- o. Executes a normal landing from a straight-in or circling approach when instructed by the instructor pilot.

VOR/DME Approach

Objective:

This maneuver affords practice in terminal area arrivals utilizing the VOR for the final approach portion in conjunction with the use of the DME for assistance in identifying the position fix. The position fix is generally identified by a radial of a nearby VOR. The trainee will assure that the correct approach chart is being used and the correct frequencies are tuned in.

Description:

ATC or the instructor pilot will clear the trainee for the specific VOR approach. The primary VHF navigational receiver to be used will be properly tuned, identified, and course selector set for the approach. If the number two navigational receiver is to be used to identify intersections or position fixes, missed approach points or a backup for the number one receiver, it also will be properly tuned. The DME will also be tuned to the proper frequency and the trainee will assure that he has noted the DME distances. The trainee will be aware that DME distance rarely are the same as the actual distances.

The approach checklist should be accomplished immediately prior to commencing the approach to reduce pilot workload and allow concentration of maneuvering the aircraft for the approach. The landing checklist may be accomplished at any time during the approach with the exception of landing gear and flaps. Prior to the final approach position fix, the trainee will verify field elevation, MDA, time to missed approach, missed approach procedures, and the DME distances.

Upon passing the final approach position fix, begin descent to MDA or step down fix, if applicable. Landing gear should be extended at the final approach position fix inbound. Landing flaps may be delayed until landing is assured. The DME will be used to verify position fix on inbound leg.

At MDA, appropriate time and DME distance, the trainee will advise the airport should be in sight. The instructor will advise that a landing or missed approach be executed.

For DME arc instructions, see VOR approach.

For RNAV approach instructions, see VOR approach.

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Acceptable Performance Guidelines:

The trainee will comply with ATC and published procedures. The aircraft will be operated in a smooth, coordinated manner. Proper training and setting of the radios should be accomplished and no full scale deflections of the CDI during final approach are acceptable. Acceptable standards are as follows:

- a. Altitude +50, -0 MDA.
- b. Airspeed, +/- 5 knots specified for approach.
- c. Able to land straight in or circle for landing without excessive maneuvering.

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NDB Approach

Objective:

This maneuver affords practice in terminal area arrivals utilizing the ADF for the final approach portion.

Description:

The instructor pilot shall clear the trainee for an NDB approach from any specific position, or following a descent in a holding pattern. Emphasis will be placed on the proper technique in tracking a magnetic bearing. The before landing checklist, up to landing gear down and landing flaps, will be accomplished inbound to the NDB.

Station passage is confirmed when the ADF needle has made more than a 90-degree swing. As station passage is recognized, the before landing checklist will be completed with the exception of landing flaps which may be delayed until landing is assured.

Prior to crossing the station inbound, the trainee will verify field elevation, MDA, missed approach procedure, and time from the station to missed approach.

Time over the station will be noted and the descent normally made at 500 FPM. At MDA and appropriate time, the trainee will advise that the airport should be in sight and the instructor pilot will advise if a landing or missed approach is to be executed.

Acceptable Performance Guidelines:

The trainee will comply with recommended procedures and maneuver the aircraft in a smooth coordinated manner. The following standards are considered acceptable:

- a. Exhibits adequate knowledge of the elements of an NDB instrument approach procedure.
- b. Selects and complies with the appropriate NDB instrument approach procedure to be performed.
- c. Establishes two-way communications with ATC, as appropriate to the phase of flight or approach segment, and uses proper radio communications phraseology.
- d. Selects, tunes, identifies, confirms, and monitors the operational status of ground and aircraft navigation equipment to be used for the approach procedure.

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- e. Complies with all clearances issued by ATC or the Instructor pilot.
- f. Recognizes when heading indicator and/or attitude indicator is inaccurate or inoperative, advises controller and takes appropriate action.
- g. Advises ATC or the instructor pilot anytime the aircraft is unable to comply with a clearance.
- h. Establishes the appropriate aircraft configuration and airspeed considering turbulence and wind shear, and completes the aircraft checklist items appropriate to the phase of flight.
- i. Maintains, prior to beginning the final approach segment, the altitude within 100 feet, heading and bearing within 10 degrees, and airspeed within 10 knots.
- j. Applies the necessary adjustments to the published MDA and visibility criteria for the aircraft approach category when required, such as -
 - 1. FDC and Class II NOTAMs.
 - 2. inoperative aircraft and ground navigation equipment.
 - 3. inoperative visual aids associated with the landing environment.
 - 4. National Weather Service (NWS) reporting factors and criteria.
- k. Establishes a rate of descent and track that will ensure arrival at the MDA prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made at a normal rate using normal maneuvers.
- l. Maintains, while on the final approach segment, a deviation of not more than 10 degrees from the desired bearing, and maintains airspeed within 10 knots.
- m. Maintains the MDA, when reached, within +100 feet, -0 feet to the MAP.
- n. Executes the missed approach procedure when the required visual references for the intended runway are not distinctly visible and identifiable at the MAP.
- o. Executes a normal landing from a straight-in or circling approach when instructed by ATC or the instructor pilot.

Circling Approach

Objective:

This maneuver is used to provide training in maneuvering the aircraft at low altitudes under weather conditions at the published circling minimum descent altitude and landing on a runway other than the instrument approach runway.

Description:

The approach to the airport from final fix is accomplished with gear down and approach flaps. Maneuver the aircraft onto the downwind leg at a position not more than published minimum visibility distance from the landing runway. Visual reference with the runway must be maintained throughout the maneuver. When landing is assured, complete the "Before Landing" checklist. Maintain MDA until the aircraft is in a position from which a normal approach to landing can be made. The turn and rate of descent should be adjusted so as to bring the aircraft smoothly in alignment with the runway utilizing a normal glide slope approaching the runway. From this point a normal approach and landing shall be executed. It should be emphasized that excessively banked turns close to the ground are undesirable and should be avoided.

Acceptable Performance Guidelines:

- a. Airspeed +5, -0 Knots.
- b. Altitude +50, -0 feet at MDA.
- c. Bank angle maximum 30 degrees.

Contact and Visual Approach Procedures

Description:

The contact approach is the equivalent of a special VFR approach while on an IFR flight plan. Practice of the contact approach requires that the flying pilot demonstrate his ability to fly the intended path to the airport in VFR conditions identifying prominent landmarks and the possible hazards to navigation along the path and explaining what he would do if he was unable to continue the approach. The last is important since there is, by definition, no missed approach procedure for a contact approach.

Practice of the visual approach procedure is accomplished during the normal landing practice as this is a VFR only procedure.

Acceptable Performance Guidelines:

The pilot will navigate to the airport over a path that is free of obstructions and allows the required terrain and obstacle clearance.

Missed Approach Procedures

Objective:

These procedures provide training in the execution of missed approaches in various configurations.

Description:

At the completion of an instrument approach, at either MDA or DH, the instructor will command "Missed Approach." At this time power will be advanced to maximum and pitch attitude adjusted to that which will check descent. As the aircraft accelerates, flaps will be retracted to the setting appropriate for the existing conditions. The pitch attitude will be adjusted for climb and the aircraft accelerated to V_y . The landing gear will be retracted when a positive rate of climb is established and, if necessary, final flap retraction will be accomplished. The appropriate missed approach procedure, (The published missed, Special Instructions issued by ATC or if visual reference is lost during a circling approach a initial climbing turn in the direction of the runway to join and complete the published procedure) will be executed. Maximum power should be maintained until at least 500 feet AGL. The above procedures may vary slightly due to the difference in aircraft performance. Many of the aircraft used will have minimum performance and acceleration in the landing configuration; therefore, exact go-around procedures must be used to assure that a successful missed approach can be accomplished.

Acceptable Performance Guidelines:

- a. Maintain positive control of the aircraft.
- b. Airspeed +10, -0.
- c. Heading plus or minus 5 degrees.
- d. Correct sequence of procedures.
- e. Compliance with published missed approach procedures or ATC instructions as appropriate.
- f. Altitude not below MDA or DH as appropriate.
- g. Turns in the appropriate direction, when a missed from a circling approach is required.

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Emergency Descent

Objective:

This maneuver affords training in recommended procedures for establishing the highest practical rate of descent available during emergency conditions arising from an uncontrollable fire, sudden loss of pressurization, or from any other situation demanding an immediate and rapid descent.

Description:

The primary purpose of this maneuver is to descend the aircraft as soon as practicable to a safe altitude. In order to maintain positive "G" forces and for the purpose of clearing altitudes below, a 30 to 45 degree bank should be established in the initial descent for at least a 90 degree heading change. This maneuver should be performed with the aircraft configured as recommended by the manufacturer.

Performance of this maneuver should strictly adhere to the procedures outlined in the aircraft flight manual. Unless an actual emergency exists, the emergency descent should always be done in daylight, VFR conditions, and never through any cloud layers.

Acceptable Performance Guidelines:

- a. Maintain positive aircraft control.
- b. Do not exceed designated maximum speeds.
- c. Maintain positive "G" forces.

Note: As soon as all prescribed procedures are completed and the descent is established and stabilized, this maneuver will normally be terminated.

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Normal Landing

Objective:

This maneuver provides training through the entire landing traffic pattern, including touchdown and rollout. It is used to develop proper techniques in power and control usage at relatively low airspeeds during the critical phases of final approach and touchdown.

Description:

The "Approach" checklist will be completed before entering the traffic pattern. Unless otherwise directed by ATC, entry to the downwind leg should be midfield at traffic pattern altitude and a 45-degree angle. Speed should be reduced to that compatible with other aircraft in the pattern as practicable.

When downwind opposite the point of touchdown, extend landing gear and complete "Landing" Checklist except for landing flaps. Angle of bank should not exceed 30 degrees while in the traffic pattern.

Under normal conditions, landing flaps should not be extended until established on final and the landing is assured. When established on final approach, and after landing flaps are extended, stabilize airspeed to that recommended by the manufacturer. If a recommended airspeed is not furnished by the manufacturer, a speed equal to 1.3 V_{so} should be used. The approach should be planned so the landing will be made in the center of the first one-third of the runway with a smooth transition from approach to landing attitude. Always use a smooth coordinated power reduction in aircraft using power during the approach.

The "After Landing" Checklist will not be accomplished until clear of the runway.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind approaches and landings including airspeeds, configurations, performance, and related safety factors.
- b. Establishes the approach and landing configuration and adjusts the power controls, as required.

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- c. Maintains a stabilized descent angle and the recommended approach airspeed, with gust factor applied, plus or minus 5 Knots.
- d. Notes any obstructions or other hazards in the approach path and landing area, and considers landing performance capability.
- e. Verifies wind condition and makes positive correction for crosswind.
- f. Maintains a precise ground track on final approach.
- g. Recognizes and promptly corrects deviations during approach and landing.
- h. Makes smooth, timely, and precise control application during the transition from approach to landing round out (flare).
- I. Touches down smoothly at approximate stalling speed, beyond and within 200 feet of a specified point, with no drift and the airplane's longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control and crosswind correction during the after-landing roll.
- k. Completes the after-landing checklist in a timely manner.

Simulated Forced Landings

Description:

A simulated forced landing can be practiced with the aircraft in any configuration. The instructor will announce "forced landing" and check that the power levers are closed. In order to obtain the best glide ratio, the cleanest configuration and best glide speed are normally established as soon as possible. If the airspeed is above the glide speed the pilot should maintain altitude, place the aircraft in its cleanest configuration and allow airspeed to dissipate to best glide speed. Altitude permitting, the pilot should determine the best landing area available. Many variables including altitude, obstructions, wind direction, landing direction, landing surface, gradient, and landing distance requirements of the aircraft will determine the pattern and approach techniques used to complete the maneuver. The pilot should consider landing on a long field crosswind or uphill or downwind, if such a landing would be safer than directly into the wind.

Note: During the glide and approach, the instructor pilot will assure that measures are taken to keep the engines operating normally.

Utilizing any combination of normal gliding maneuvers, from wings level to spirals, the flying pilot is expected to eventually arrive at the normal "key" position at normal traffic pattern altitude for the selected landing area. From this point on the approach is the same as a normal power-off approach allowing the flying pilot to use his previous experience in judging his landing point.

Cockpit checklists are a part of this maneuver. Items appropriate to the aircraft being used will be covered. The pilot will perform the memory items and then perform the appropriate checklist to insure that all items have been attended to.

Note: It is mandatory that the instructor and pilot know before hand who is going to initiate the go-around and who will be flying the aircraft at that time. No simulated forced landing is to be carried below 200' AGL unless a safe landing is assured. Proximity of persons and structures must be considered when descending under 500' AGL.

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Acceptable Performance Guidelines:

Airspeed +10 kts. -0 Kts.

Altitude at key position +200' from normal pattern altitude.

Go-around initiated at 200' altitude from a position where it is obvious that a safe landing could be made, or a landing completed on an approved landing area.

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Landing with Simulated Power plant Failure

Objective:

This maneuver provides training in accomplishing approach to land (and landing) with a failure of one powerplant.

Description:

a. Conditions of flight:

1. All engine cuts will be in accordance with manufacturer's recommendations.
2. All simulated engine failures will be accomplished with power lever, and feathering will be simulated with zero thrust when less than 2000' above terrain.

b. The maneuver:

1. Due to variations in performance, limitations, etc., of the many light twins, no specific flight path or procedure can be proposed that would be adequate in all engine emergencies.
2. In most light twins, a single engine approach and landing can be accomplished with the flight path and procedures almost identical to a normal approach and landing, with three noteworthy exceptions:
 - I. Speed on final should not be less than Vyse until the landing is assured; thereafter, at the approach speed commensurate with the flap position until the landing flare.
 - ii. Under normal conditions, the landing will be made with full flaps; however, full flaps should not be lowered until the landing is assured. In this configuration, approach speed should be 1.3 Vso.
 - iii. If unusual circumstances dictate landing with other than full flaps, the approach speed will be 1.3 Vsl.

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Note: Long flat approaches with high power output on the operating engine and/or excessive threshold speed that results in floating and unnecessary runway use should be avoided.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the procedure used during an approach and landing with an inoperative engine.
- b. Sets the engine controls, reduces drag, and identifies and verifies inoperative engine after simulated engine failure.
- c. Establishes the recommended airspeed and trims the airplane.
- d. Follows the prescribed checklist to verify procedures for securing the inoperative engine and completes pre-landing checklist.
- e. Establishes a bank toward the operating engine as required for best performance.
- f. Maintains proper track on final approach.
- g. Establishes the approach and landing configuration and power.
- h. Maintains a stabilized descent angle and the recommended final approach airspeed until landing is assured. Not less than Vyse.
- i. Touches down smoothly beyond and within 500 feet of a specified point, with no drift and the longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control during after-landing roll.

Short Field Landings *

Objective:

These maneuvers are practiced to develop proficiency in overcoming problems peculiar to marginal operations which may be encountered while landing at short fields.

Description:

a. Short Field Landings:

Short field landings should be made from a stabilized final approach in landing configuration. Manufacturers recommended airspeed should be used with moderately low power and a constant rate of descent. The landing should be accomplished with little or no floating. Upon touchdown, the power levers should be closed immediately accompanied by proper application of brakes to minimize the after-landing roll.

Note: Extreme caution should be exercised when practicing short field landings at minimum speeds. At these speeds, high sink rates may occur in some aircraft requiring excessive altitude and/or power for recovery.

Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of a short-field approach and landing, including airspeeds, configurations, and related safety factors.
- b. Considers obstructions, landing surface, and wind conditions.
- c. Selects a suitable touchdown point.

*NOTE: King Air aircraft at Royal Air Freight are operated only from hard surface runways.

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- d. Establishes the recommended short-field approach and landing configuration and adjusts power and pitch, as required.
- e. Maintains a stabilized descent angle, precise control of the descent rate, and recommended airspeed.
- f. Maintains a precise ground track on final approach.
- g. Recognizes and promptly corrects deviations during approach or landing.
- h. Makes smooth, timely, and precise control application during the transition from approach to landing roundout (flare).
- i. Touches down smoothly beyond and within 100 feet of a specified point, no drift, and with the airplane longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control during the after-landing roll.
- k. Applies smooth braking, as necessary, to stop in the shortest distance consistent with safety.
- l. Completes the after-landing checklist in a timely manner.

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Crosswind Landings

Objective:

This maneuver provides training in the more complex control techniques and limitations of the aircraft during landing with crosswind conditions.

Description:

On short final approach, the crab into the wind is changed to a slip into the wind. The force held on the controls is proportionate to the crosswind. The slip must keep the flight path and the fuselage of the aircraft aligned with the runway centerline. As ground contact is made on the wheel into the wind, the controls are gradually moved farther in the same direction to compensate for loss of control effectiveness as speed decreases.

Acceptable Performance Guidelines:

Normal and Crosswind Approaches and Landings

- a. Exhibits commercial pilot knowledge by explaining the elements of normal and crosswind approaches and landings including airspeeds, configurations, performance, and related safety factors.
- b. Establishes the approach and landing configuration and adjusts the power controls, as required.
- c. Maintains a stabilized descent angle and the recommended approach airspeed, with gust factor applied, plus or minus 5 Knots.
- d. Notes any obstructions or other hazards in the approach path and landing area, and considers landing performance capability.
- e. Verifies wind condition and makes positive correction for crosswind.
- f. Maintains a precise ground track on final approach.
- g. Recognizes and promptly corrects deviations during approach and landing.
- h. Makes smooth, timely, and precise control application during the transition from approach to landing roundout (flare).
- i. Touches down smoothly at approximate stalling speed, beyond and within 200 feet of a specified point, with no drift and the airplane's longitudinal axis aligned with the runway centerline.
- j. Maintains positive directional control and crosswind correction during the after-landing roll.
- k. Completes the after-landing checklist in a timely manner.

No Flap Approach and Landing

Objective:

This maneuver provides training in making approaches and landings with simulated failure of components of the landing flap system.

Description:

No flap landings will be conducted as a normal landing except without flaps and from a speed equal to 1.3 times the power off stall speed with flaps retracted. The trainee should be aware that in most aircraft the touchdown will be in a higher than normal nose up attitude, and that the landing roll will be longer due to the loss of drag caused by the no flap condition and higher touchdown speed. The use of brakes may be required as dictated by runway length and surface.

Acceptable Performance Guidelines:

- a. Touchdown is not excessively short of/nor beyond desired point.
- b. Touchdown should be made on centerline of runway.
- c. Airspeed within 1.3 V_{s1} to 1.3 V_{s1} plus 10 at boundary.

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Rejected Landing

Objective:

This maneuver develops an understanding of airplane climb capabilities in the landing configuration.

Description:

This maneuver involves a go-around with both engines operating normally while in the final stages of a landing approach. All phases of the "Before Landing Checklist" will have been completed.

At any time on final approach prior to actual touchdown, the instructor will command "Go-around." This will simulate a landing obstacle such as fire equipment, another aircraft, large animal, etc., moving onto the runway directly into the landing path, or a sudden and violent shift in surface wind. The trainee will immediately apply maximum power and stop the descent. When descent has stopped, the flaps will be positioned for takeoff and aircraft pitch adjusted to avoid altitude loss. Accelerate to Vyse for initial climb.

After positive rate of climb is established, the gear will be retracted and the aircraft will be allowed to accelerate to Vy, and if necessary, final flap retraction will be accomplished.

From this point the maneuver will be conducted in the same manner as a normal takeoff.

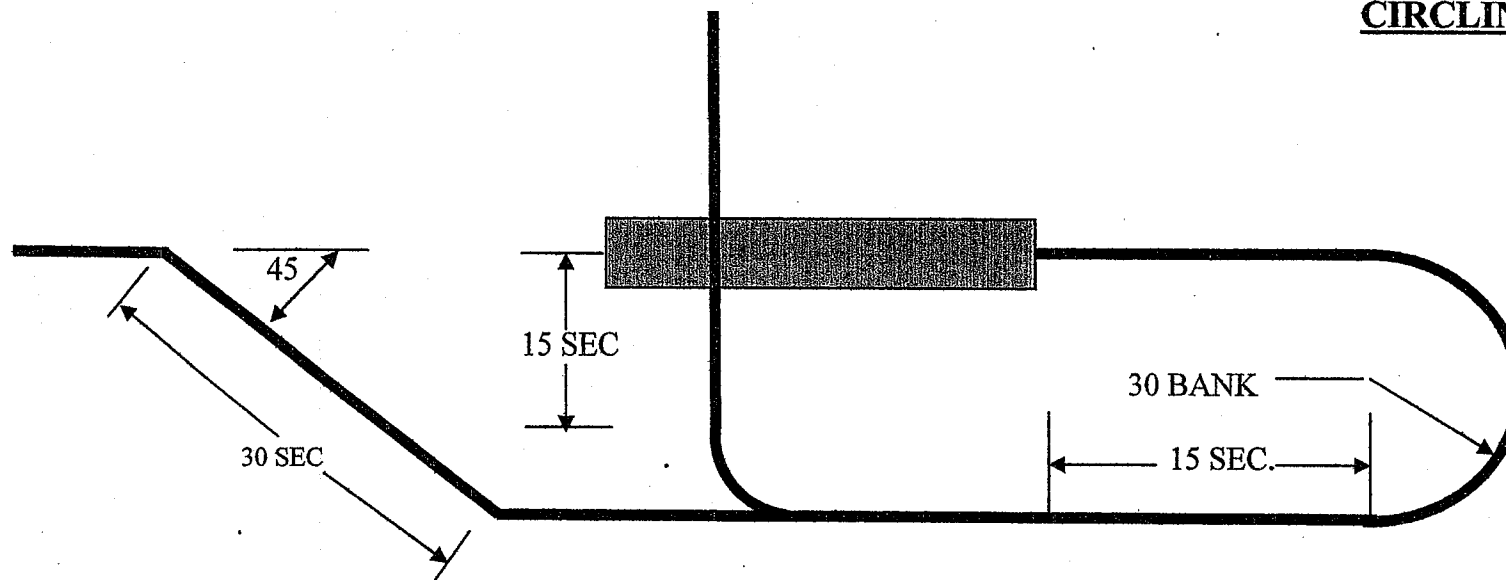
Acceptable Performance Guidelines:

- a. Exhibits commercial pilot knowledge by explaining the elements of a go-around procedure, including the recognition of the need to go around, the importance of making a timely decision, the use of recommended airspeeds, the drag effect of wing flaps and landing gear, and the importance of properly coping with undesirable pitch and yaw tendencies.
- b. Makes a timely decision to go around from a rejected landing.
- c. Applies takeoff power and establishes the precise pitch attitude required to attain the recommended airspeed.
- d. Retracts the wing flaps, as recommended, or at a safe altitude, and establishes.
- e. Retracts the landing gear, after a positive rate of climb has been established.
- f. Trims the airplane and climbs at, plus or minus 5 Knots, and maintains the proper ground track in the traffic pattern.

Appendix A -
Maneuvers Diagrams

Approved *[Signature]* 03/04
AGL - DETROIT FSDO
Principal Operations
Inspector



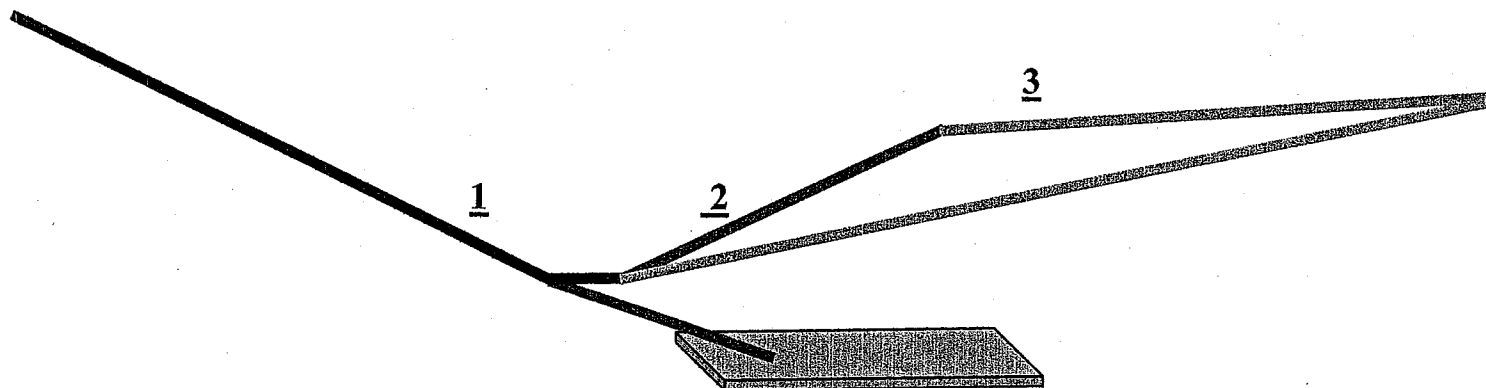
CIRCLING APPROACHES**TURNING DIAMETER IN NAUTICAL MILES**

GROUND SPEED IN KNOTS	TURNING DIAMETER WITH 20 DEGREE BANK ANGLE	TURNING DIAMETER WITH 30 DEGREE BANK ANGLE
110	1	0.62
120	1.2	0.74
130	1.4	0.87
140	1.6	1
150	1.8	1.15

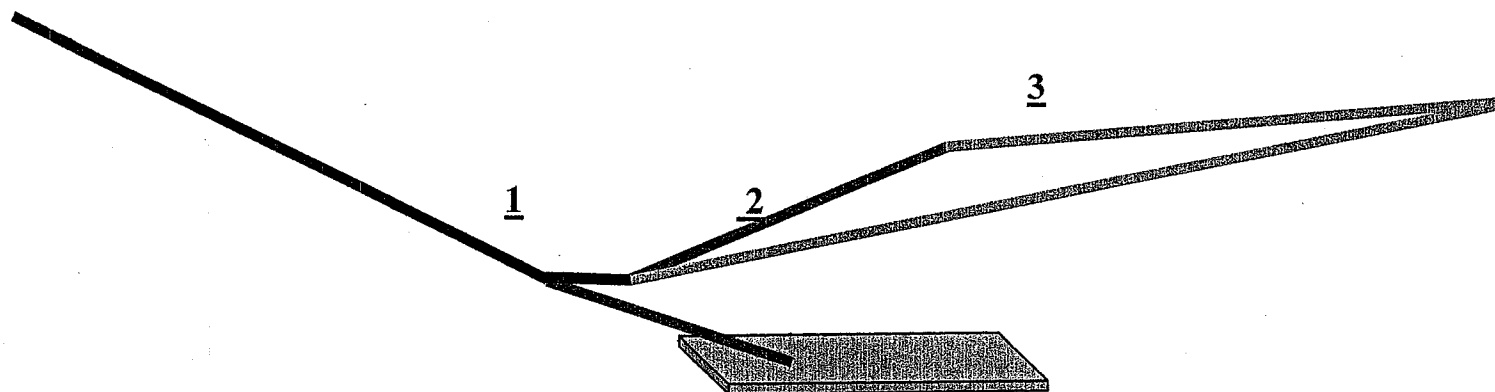
AIRCRAFT	CONFIGURATION	
	NORMAL	SINGLE ENG.

LEAR JET	GEAR DOWN FLAPS 20 REF+ 20	GEAR DOWN FLAPS 20 REF+ 20
KA 100A	GEAR DOWN FLAPS APPROACH 130-120 KTS.	FLAPS APPROACH 130-120 KTS GEAR DOWN WHEN LANDING ASSURED
EMB-110	GEAR DOWN FLAPS APPROACH 130-120 KTS.	FLAPS APPROACH 130-120 KTS GEAR DOWN WHEN LANDING ASSURED
CESSNA 310/402	GEAR DOWN FLAPS 15 120 KTS.	FLAPS 0-15 120 KTS GEAR DOWN WHEN LANDING ASSURED

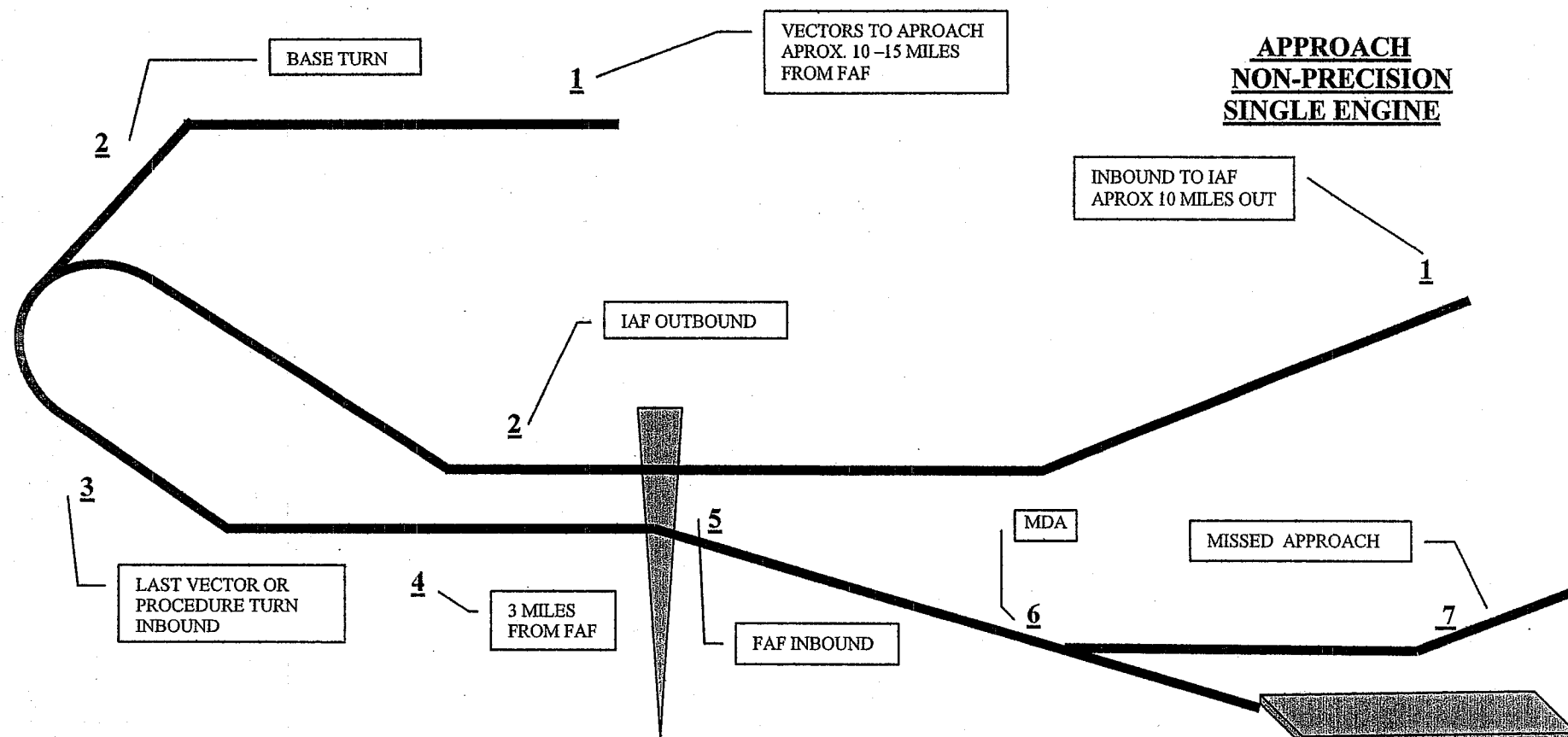
SINGLE ENGINE
MISSED APPROACH



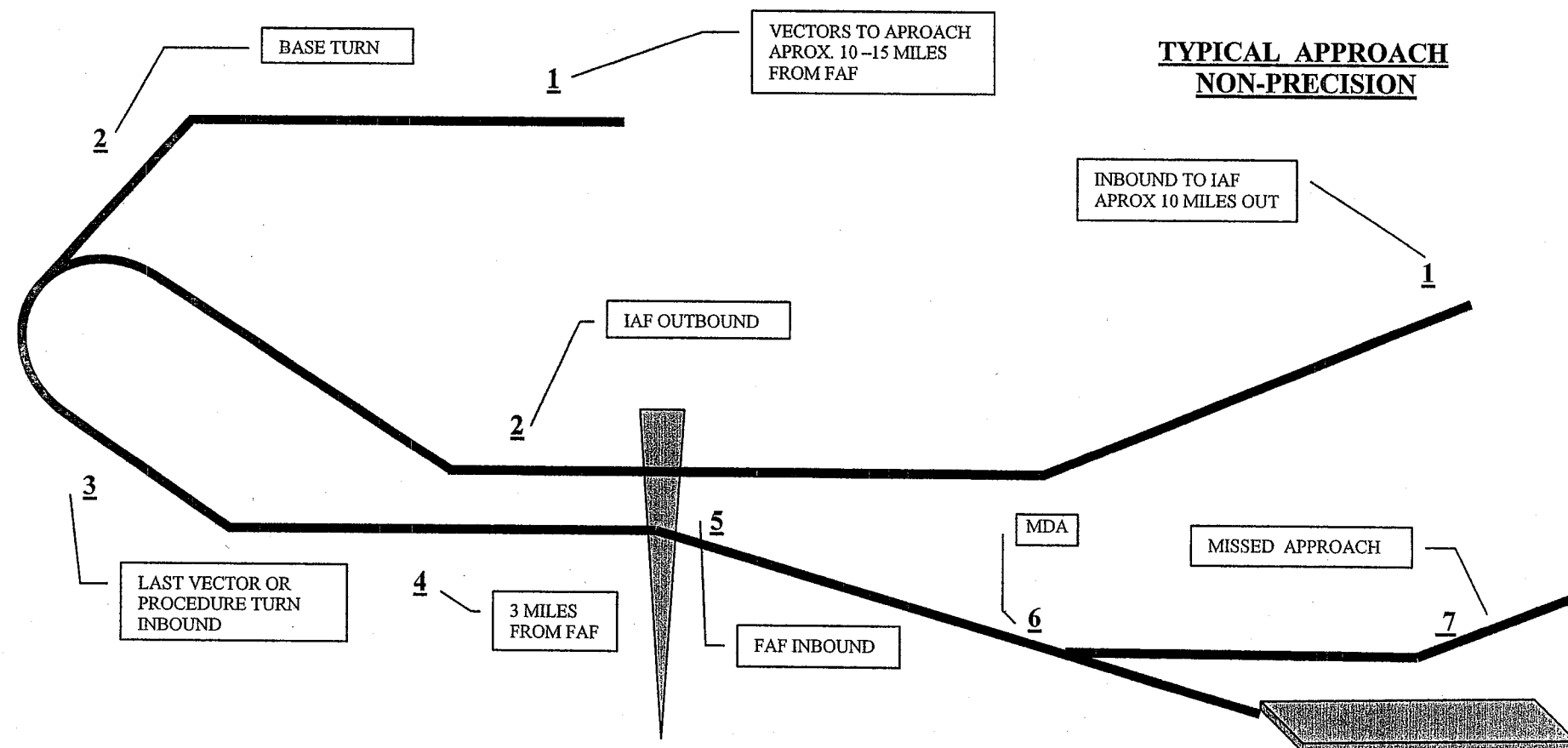
AIRCRAFT	1 (configuration)	2 (with obstacles)	3 (clear of obstacles)
LEAR JET	GEAR DOWN FLAPS 20 REF+10 YAW OFF	MAX-TAKEOFF POWER FLAPS 20 POSITIVE RATE GEAR UP REF+10	MAX-TAKEOFF POWER POSITIVE RATE GEAR UP FLAPS 20 ACCELERATE TO REF+ 30 FLAPS UP / POWER AS REQUIRED ACCELERATE TO 200 KTS
KA 100 A	GEAR DOWN FLAPS APPROACH 130-120 KTS. PROP 100%	MAX-TAKEOFF POWER FLAPS APPROACH POSITIVE RATE GEAR UP V _{xse}	MAX-TAKEOFF POWER FLAPS APPROACH POSITIVE RATE GEAR UP FLAPS UP V _{yse} POWER AS REQUIRED
EMB-110	GEAR DOWN FLAPS APPROACH 130-120 KTS. PROP 100%	MAX-TAKEOFF POWER FLAPS APPROACH POSITIVE RATE GEAR UP V _{xse}	MAX-TAKEOFF POWER FLAPS APPROACH POSITIVE RATE GEAR UP FLAPS UP V _{yse} POWER AS REQUIRED
CESSNA 310/402	GEAR DOWN FLAPS 15 120 KTS. PROPELLERS FULL	MAX-TAKEOFF POWER MIXTURE FULL RICH/AS REQ. GEAR UP FLAPS UP V _{xse}	MAX-TAKEOFF POWER MIXTURE FULL RICH/AS REQ. GEAR UP FLAPS UP V _{yse}

MISSED APPROACH

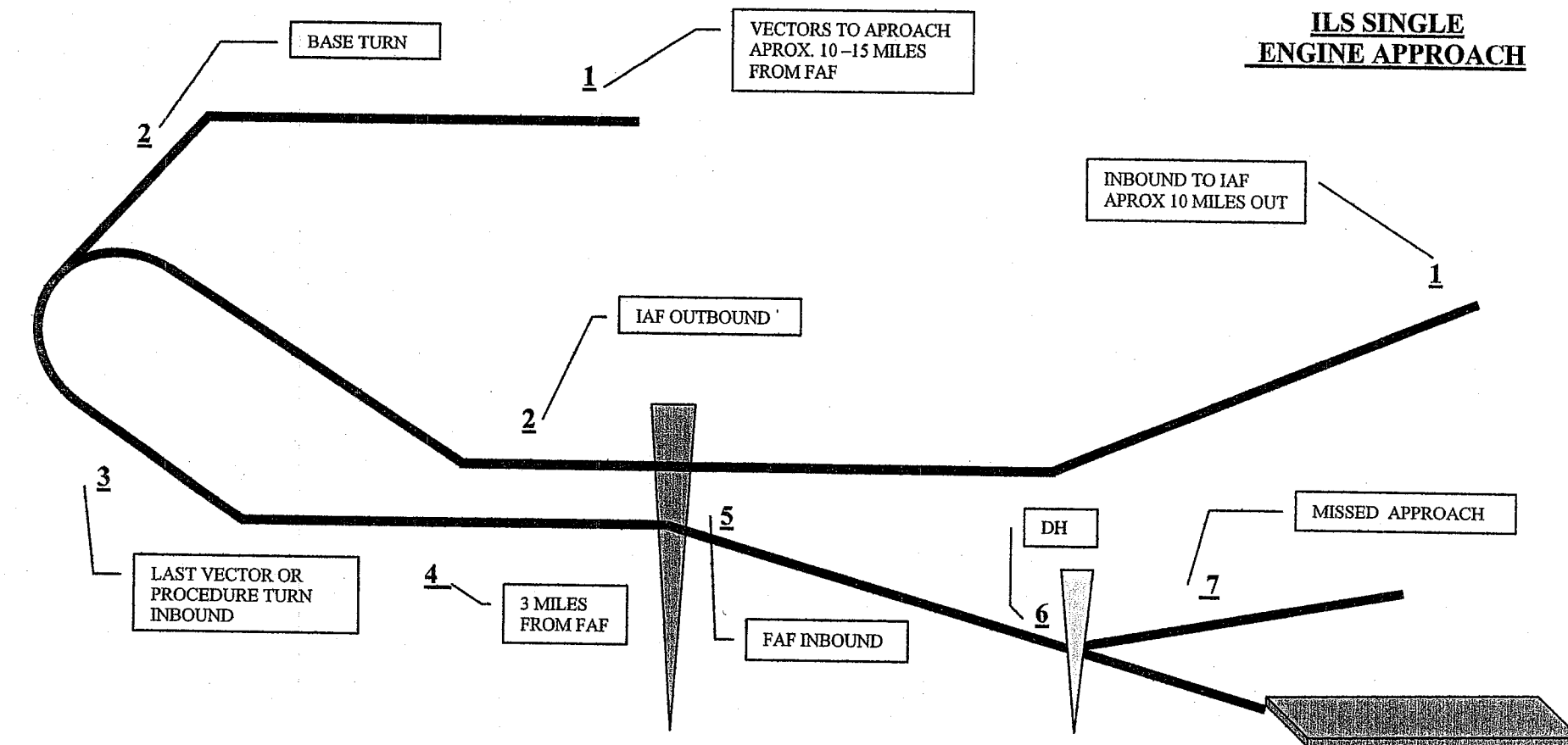
AIRCRAFT	1 (configuration)	2 (with obstacles)	3 (clear of obstacles)
LEAR JET	GEAR DOWN FLAPS FULL FLAPS 20 FOR CIRCLE OR SINGLE REF+10	TAKEOFF POWER FLAPS 20 POSITIVE RATE GEAR UP REF+10	CLIMB POWER POSITIVE RATE GEAR UP FLAPS 20 ACCELERATE TO REF+30 FLAPS UP ACCELERATE TO 200 KTS.
KA 100A	GEAR DOWN FLAPS APPROACH 130-120 KTS. PROPS 1900 rpm	TAKEOFF POWER PROPS 100% POSITIVE RATE GEAR UP FLAPS APPROACH V _x	CLIMB POWER PROPS 2000 rpm POSITIVE RATE GEAR UP FLAPS UP V _y / ACCELERATE TO 130 KTS
EMB-110	GEAR DOWN FLAPS APPROACH 130-120 KTS. PROPS 91%	TAKEOFF POWER PROPS 100% POSITIVE RATE GEAR UP FLAPS APPROACH V _x	CLIMB POWER PROPS 91% POSITIVE RATE GEAR UP FLAPS UP V _y / ACCELERATE TO 130 KTS
CESSNA 310/402	GEAR DOWN FLAPS 15 120 KTS. PROPELLERS 2500	TAKEOFF POWER MIXTURE FULL RICH/AS REQ. FLAPS UP POSITIVE RATE GEAR UP V _x	CLIMB POWER MIXTURE FULL RICH/ AS REQ. FLAPS UP POSITIVE RATE GEAR UP V _y / ACCELERATE TO 120 KTS.



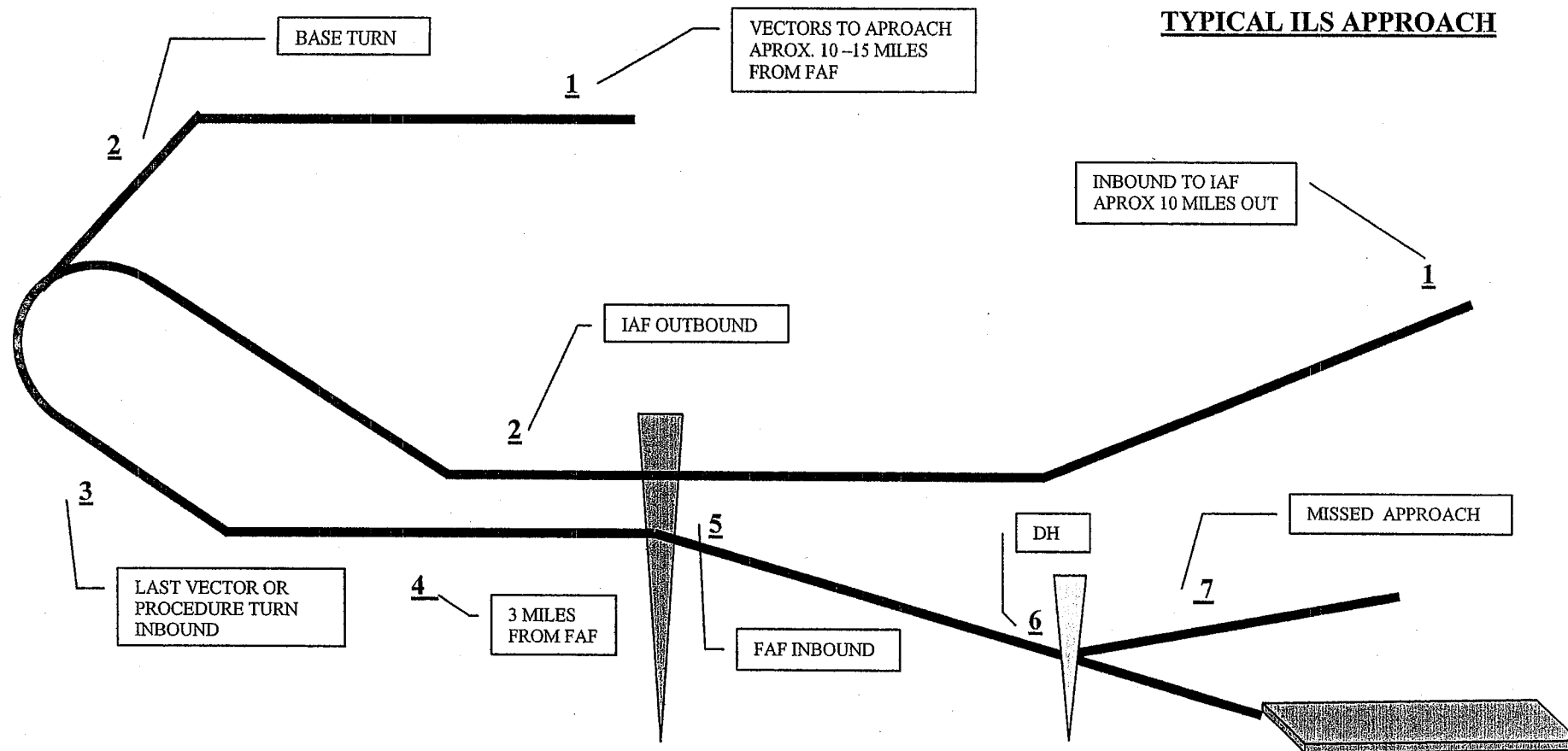
AIRCRAFT	1	2	3	4	5	6	7
LEAR JET	VREF+50 FLAPS 0 APPROACH CHECK	VREF+30 FLAPS 10	VREF+30 FLAPS 10	VREF+20 FLAPS 20 GEAR DOWN BEFORE LAND CHECK	VREF+10 FLAPS 20 OR FOR CIRCLE FLAPS 20 REF+20	RUNWAY INSIGHT VREF+10 YAW OFF T/R ARMED TOUCHDOWN VREF	MAXTAKEOFF POWER FLAPS 20 GEAR UP REF+10 accelerate
KING AIR 100A	POWER AS REQUIRED FLAPS UP APPROACH CHECK	POWER AS REQUIRED FLAPS APPR (OPT.) BEFORE LANDING CHECK	POWER AS REQUIRED FLAPS APPR. (OPT.)	POWER AS REQUIRED FLAPS APPROACH CHECK LIST TO GEAR	POWER AS REQUIRED FLAPS APPROACH GEAR DOWN (OPT.) 130-120 KTS	RUNWAY INSIGHT CHECK GEAR DOWN FLAPS 100% LANDING SPEED	MAXTAKEOFF POWER FLAPS APPROACH Positive rate gear up Vyse
EMB-110	POWER AS REQUIRED FLAPS UP APPROACH CHECK	POWER AS REQUIRED FLAPS APPR (OPT.) BEFORE LANDING CHECK	POWER AS REQUIRED FLAPS APPR. (OPT.)	POWER AS REQUIRED FLAPS APPROACH CHECK LIST TO GEAR	POWER AS REQUIRED FLAPS APPROACH GEAR DOWN (OPT.) 130-120 KTS	RUNWAY INSIGHT CHECK GEAR DOWN FLAPS 100% LANDING SPEED	MAXTAKEOFF POWER FLAPS APPROACH Positive rate gear up Vyse
CESSNA 310/402 for 402 add 2-3 inch man.	POWER AS REQUIRED PROPS FULL MIX. FULL/ AS REQ.	POWER AS REQUIRED FLAPS 15 150 KTS	POWER AS REQUIRED APPR. CHECK COMP 135 KTS	BEFORE LANDING CHECK LIST TO GEAR	POWER AS REQUIRED GEAR DOWN(OPT.) 120 KTS	RUNWAY INSIGHT CHECK GEAR DOWN FLAPS DOWN LANDING SPEED	MAXTAKEOFF POWER Positive rate gear up FLAPS UP Vyse



AIRCRAFT	1	2	3	4	5	6	7
LEAR JET	VREF+50 FLAPS 0 APPROACH CHECK	VREF+30 FLAPS 10	VREF+30 FLAPS 10	VREF+20 FLAPS 20 GEAR DOWN BEFORE LAND CHECK	VREF+10 FLAPS DOWN OR FOR CIRCLE FLAPS 20 REF+20	RUNWAY INSIGHT VREF+10 YAW OFF T/R ARMED TOUCHDOWN VREF	TAKEOFF POWER FLAPS 20 GEAR UP REF+10 accelerate
KING AIR 100A	TOQURE 800# FLAPS UP APPROACH CHECK 160KTS	800# FLAPS APPROACH 150KTS before landing check	600# FLAPS APPROACH 140	500# FLAPS 25% 130KTS CHECK LIST TO GEAR	500# FLAPS APPROACH GEAR DOWN 130-120KTS	RUNWAY INSIGHT FLAPS 100% LANDING SPEED	TAKEOFF POWER FLAPS APPROACH Positive rate gear up Vy
EMB-110	TOQURE 1000# FLAPS UP APPROACH CHECK 160KTS	1000# FLAPS APPROACH 150KTS before landing check	800# FLAPS APPROACH 140	700# FLAPS 25% 130KTS CHECK LIST TO GEAR	500# FLAPS APPROACH GEAR DOWN 130-120KTS	RUNWAY INSIGHT FLAPS 100% LANDING SPEED	TAKEOFF POWER FLAPS APPROACH Positive rate gear up Vy
CESSNA 310/4 for 40 2-3 inc	20" MAN. 160 KTS	20" MAN FLAPS 15 150 KTS	18" MAN APPR. CHECK COMP 135 KTS	BEFORE LANDING CHECK COMP. TO AR	16 " MAN GEAR DOWN 120 KTS	RUNWAY INSIGHT FLAPS DOWN PROPS/MIXTURE FULL LANDING SPEED	TAKEOFF POWER Positive rate gear Vy FLAPS UP



AIRCRAFT	1	2	3	4	5	6	7
LEAR JET	VREF+50 FLAPS 0 APPROACH CHECK	VREF+30 FLAPS 10	VREF+30 FLAPS 10	VREF+20 FLAPS 20 GEAR DOWN BEFORE LAND CHECK	VREF+10 FLAPS 20	RUNWAY INSIGHT VREF+10 FLAPS DOWN T/R ARMED TOUCHDOWN VREF	MAXTAKEOFF POWER FLAPS 20 GEAR UP REF+10 accelerate
KING AIR 100A	APPROACH CHECK POWER AS REQ.	POWER AS REQ.	POWER AS REQ. BEFOE LANDING CHECK	POWER AS REQ. FLAPS APPROACH 130KTS CHECK LIST TO GEAR	POWER AS REQ. FLAPS APPROACH GEAR DOWN (OPT) 130-120KTS	RUNWAY INSIGHT CHECK GEAR DOWN FLAPS 100% LANDING SPEED	MAXTAKEOFF POWER FLAPS APPROACH Positive rate gear up Vyse
EMB-110	APPROACH CHECK POWER AS REQ.	POWER AS REQ.	POWER AS REQ. BEFOE LANDING CHECK	POWER AS REQ. FLAPS APPROACH 130KTS CHECK LIST TO GEAR	POWER AS REQ. FLAPS APPROACH GEAR DOWN (OPT) 130-120KTS	RUNWAY INSIGHT CHECK GEAR DOWN FLAPS 100% LANDING SPEED	MAXTAKEOFF POWER FLAPS APPROACH Positive rate gear up Vyse
CESSNA 310/402	POWER AS REQ.	POWER AS REQ.	POWER AS REQ. APPR. CHECK COMP	FLAPS 15 (OPT.) BEFORE LANDING CHECK COMP. TO GEAR	POWER AS REQ. FLAPS 15 GEAR DOWN (OPT.) 120 KTS	RUNWAY INSIGHT CHECK GEAR DOWN FLAPS DOWN (OPT) LANDING SPEED	MAXTAKEOFF POWER Positive rate gear up FLAPS UP Vyse

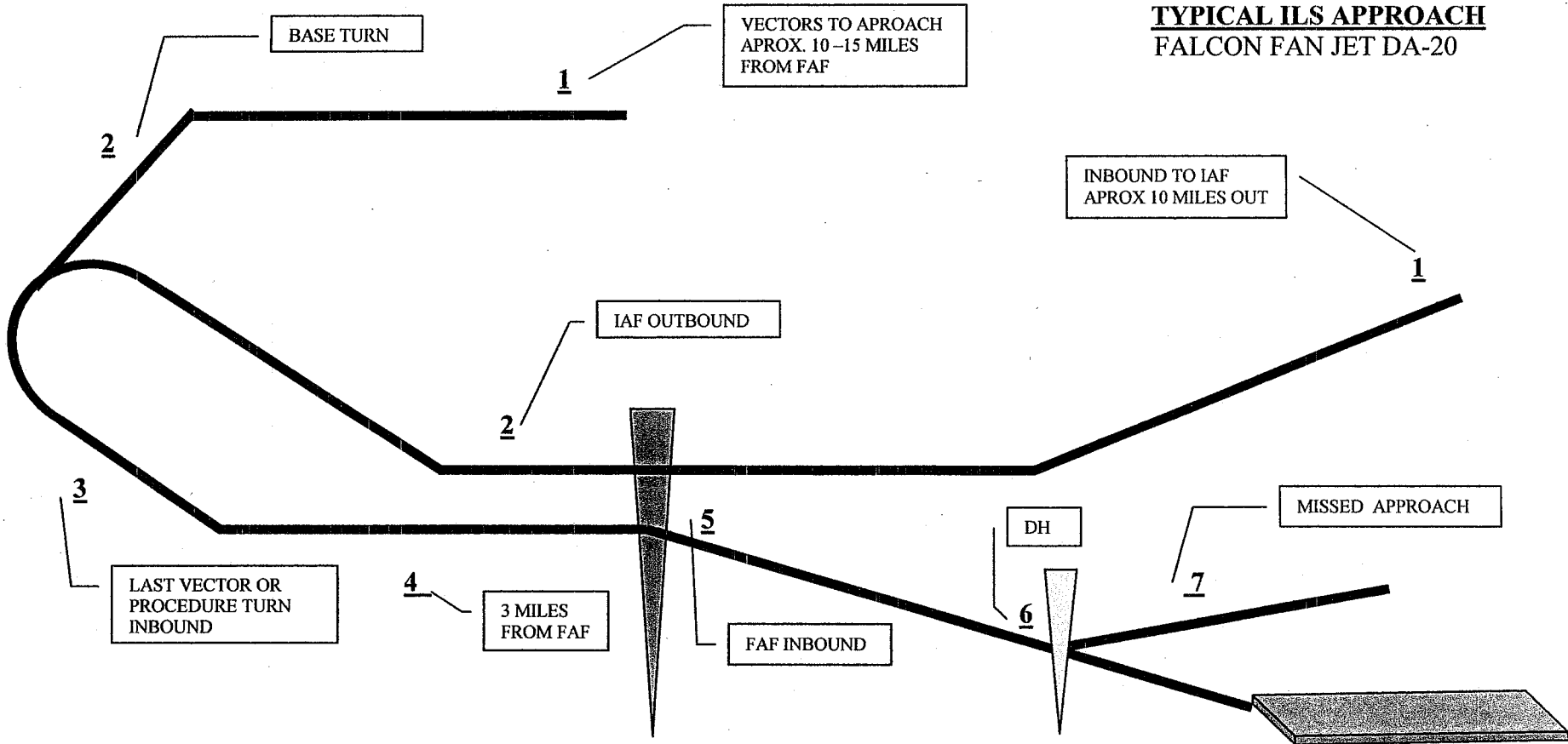
TYPICAL ILS APPROACH

AIRCRAFT	1	2	3	4	5	6	7
LEAR JET	VREF+50 FLAPS 0 APPROACH CHECK	VREF+30 FLAPS 10	VREF+30 FLAPS 10	VREF+20 FLAPS 20 GEAR DOWN BEFORE LAND CHECK	VREF+10 FLAPS DOWN	RUNWAY INSIGHT VREF+10 YAW OFF T/R ARMED TOUCHDOWN VREF	TAKEOFF POWER FLAPS 20 GEAR UP REF+10 accelerate
KING AIR 100A	TOQURE 800# FLAPS UP APPROACH CHECK 160KNTS	800# FLAPS APPROACH 150KTS before landing check	600# FLAPS APPROACH 140KTS	500# FLAPS APPROACH 130KTS CHECK LIST TO GEAR	500# FLAPS APPROACH GEAR DOWN 130-120KTS	RUNWAY INSIGHT FLAPS 100% LANDING SPEED	TAKEOFF POWER FLAPS APPROACH Positive rate gear up Vy FLAPS UP
EMB-110	TOQURE 1000# FLAPS UP APPROACH CHECK 160KNTS	1000# FLAPS APPROACH 150KTS before landing check	800# FLAPS APPROACH 140KTS	700# FLAPS APPROACH 130KTS CHECK LIST TO GEAR	500# FLAPS APPROACH GEAR DOWN 130-120KTS	RUNWAY INSIGHT FLAPS 100% LANDING SPEED	TAKEOFF POWER FLAPS APPROACH Positive rate gear up Vy FLAPS UP
CESSNA 310/402 for 40 2-3 in	20" MAN. 160 KTS	20" MAN FLAPS 15 150 KTS	18" MAN APPR. CHECK COMP 135 KTS	BEFORE LANDING CHECK COMP. TO GEAR	16 " MAN GEAR DOWN 120 KTS	RUNWAY INSIGHT FLAPS DOWN PROPS/MIXTURE FULL LANDING SPEED	TAKEOFF POWER Positive rate gear up Vy Flaps up



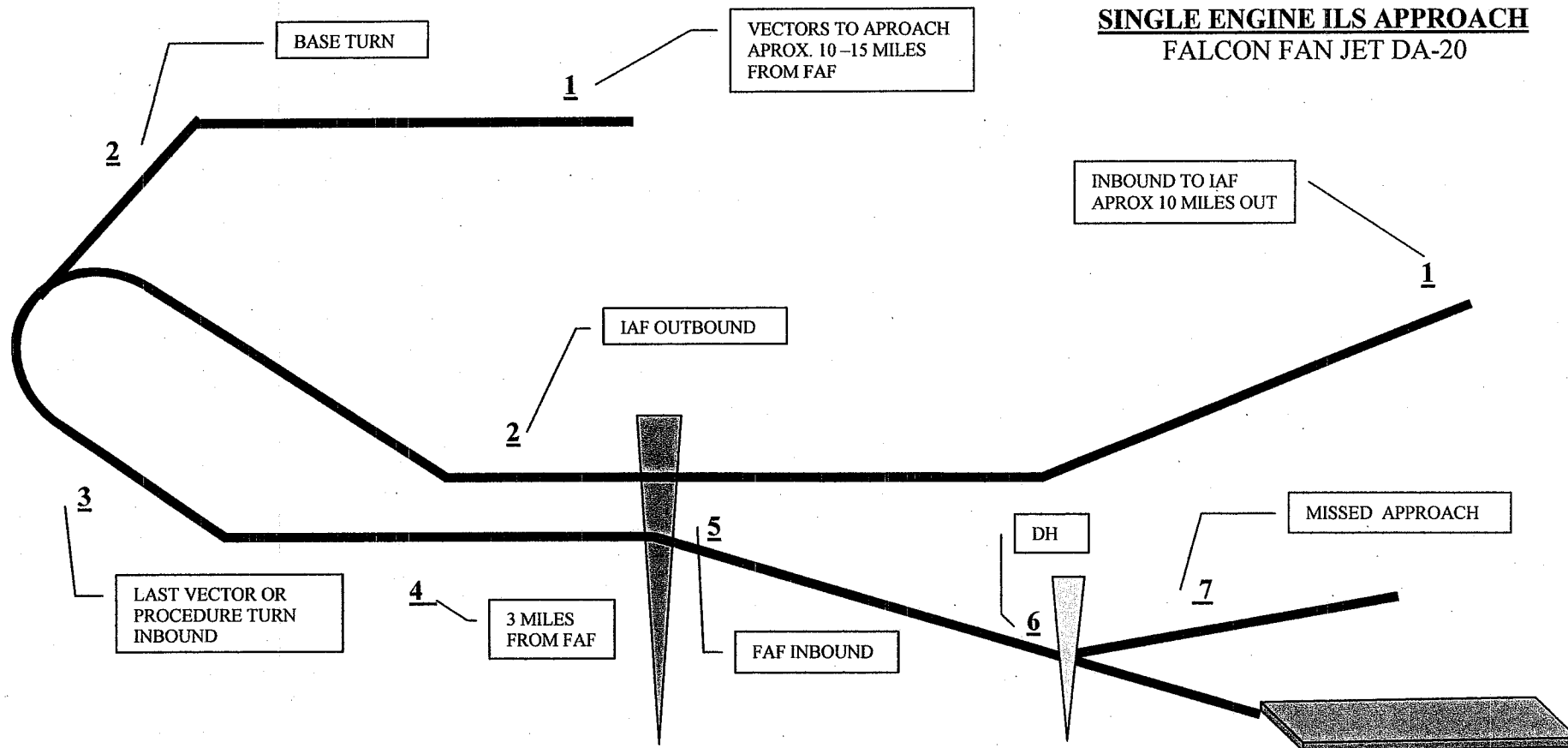
Ch

TYPICAL ILS APPROACH
FALCON FAN JET DA-20



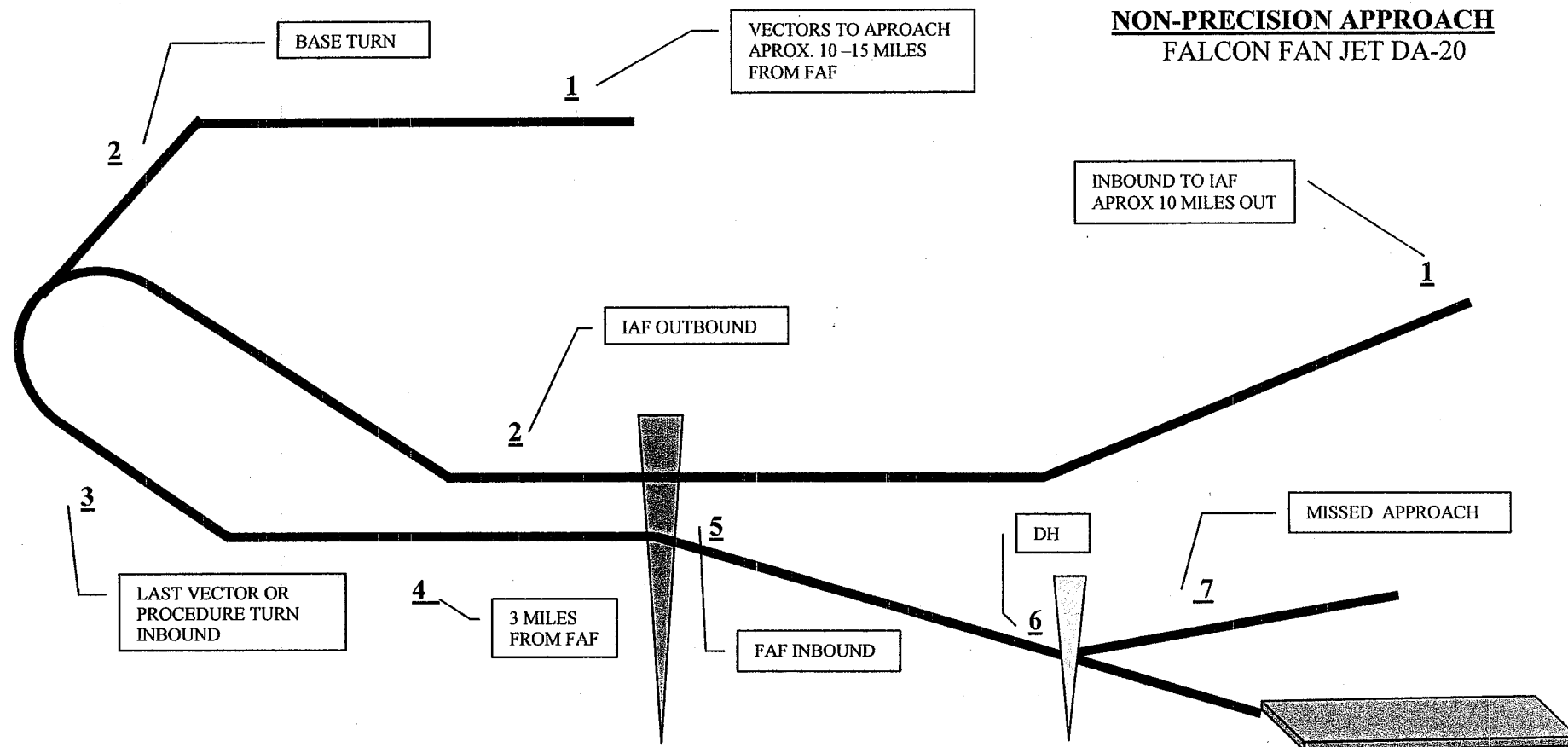
	1	2	3	4	5	6	7
SPEED	Vref+40 min.	Vref+30 min.	Vref+30 min	Vref+20 min	Vref+10 Plus wind factor	Vref Plus wind factor	Takeoff power Vref+20
FLAPS	UP	15	15	25	40	40	25
GEAR	UP	UP	UP	DOWN	DOWN	DOWN	POSITIVE RATE UP
CHECK LIST	Approach check to flaps	Approach Check complete	Approach Check complete	Before landing Check to flaps	Before landing complete	Before landing complete	After Takeoff

SINGLE ENGINE ILS APPROACH **FALCON FAN JET DA-20**



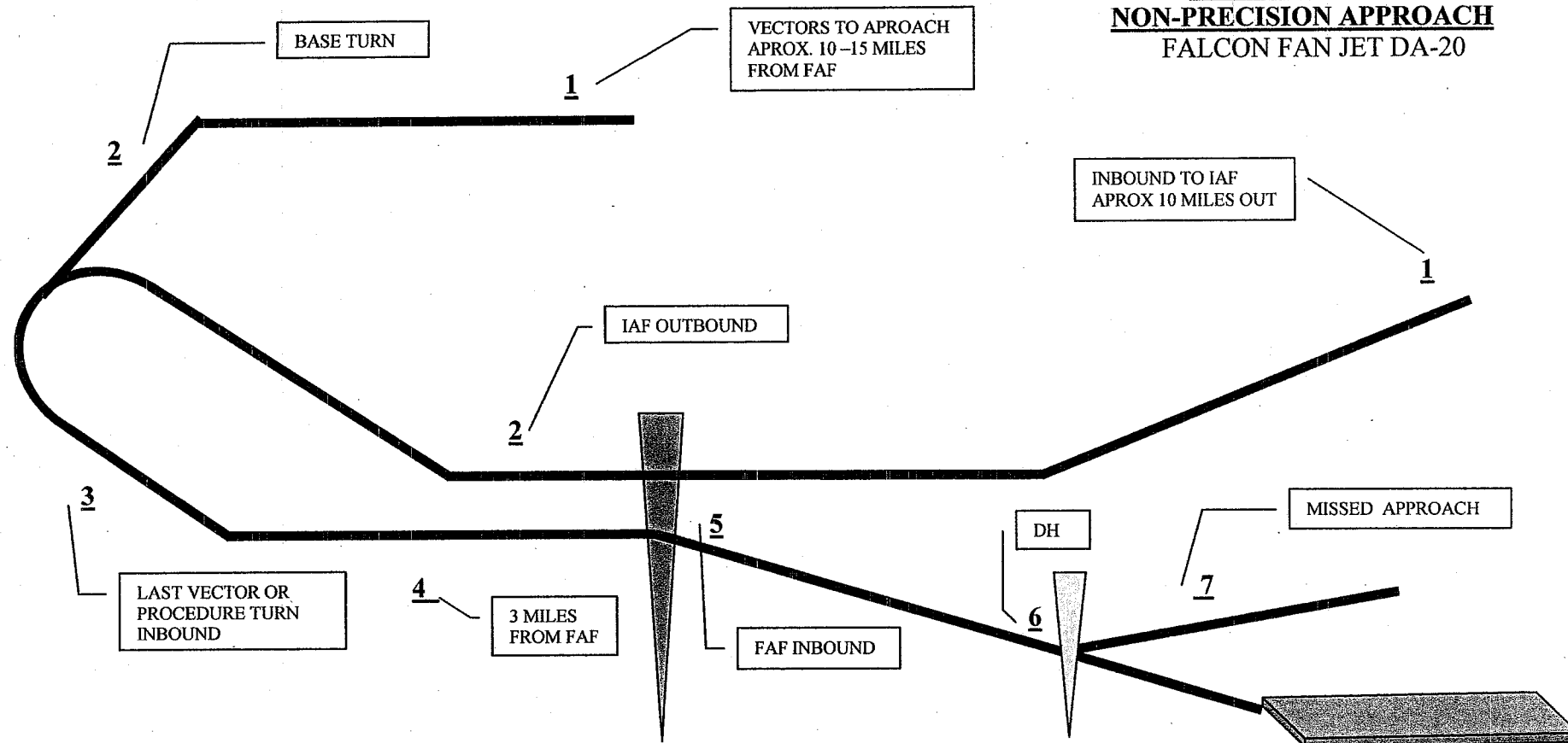
	1	2	3	4	5	6	7
SPEED	Vref+40 min.	Vref+30 min.	Vref+30 min	Vref+20 min	Vref+10 Plus wind factor	Vref Plus wind factor	Max Power Vref+10
FLAPS	UP	15	15	25	40	40	25
GEAR	UP	UP	UP	DOWN	DOWN	DOWN	POSITIVE RATE UP
CHECK LIST	Approach check to flaps	Approach Check complete	Approach Check complete	Before landing Check to flaps	Before landing complete	Before landing complete	After Takeoff

NON-PRECISION APPROACH
FALCON FAN JET DA-20



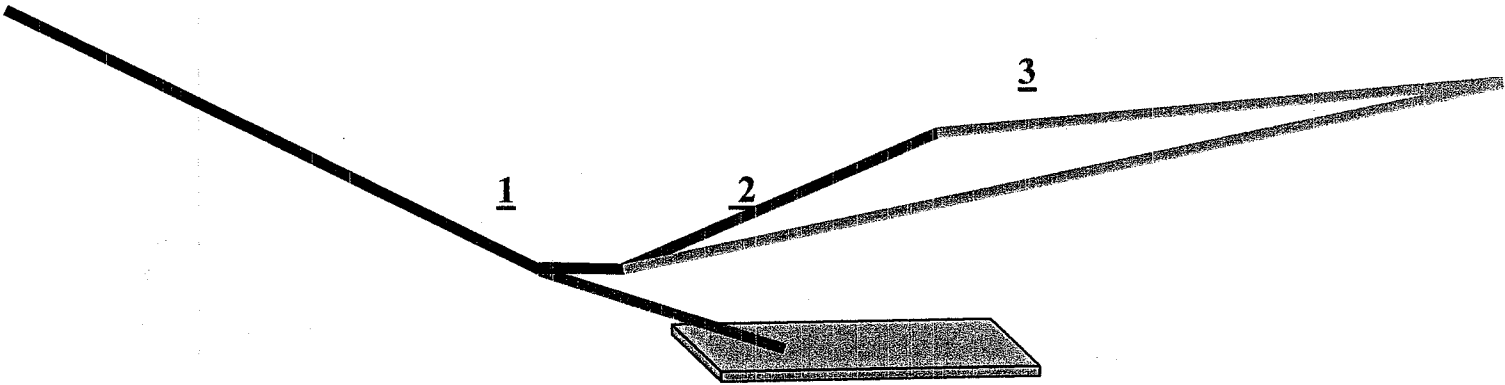
	1	2	3	4	5	6	7
SPEED	Vref+40 min.	Vref+30 min.	Vref+30 min	Vref+20 min	Vref+10 Plus wind factor	Vref Plus wind factor	Takeoff Power Vref+20
FLAPS	UP	15	15	25	40	40	25
GEAR	UP	UP	UP	DOWN	DOWN	DOWN	POSITIVE RATE UP
CHECK LIST	Approach check to flaps	Approach Check complete	Approach Check complete	Before landing Check to flaps	Before landing complete	Before landing complete	After Takeoff

SINGLE ENGINE
NON-PRECISION APPROACH
FALCON FAN JET DA-20



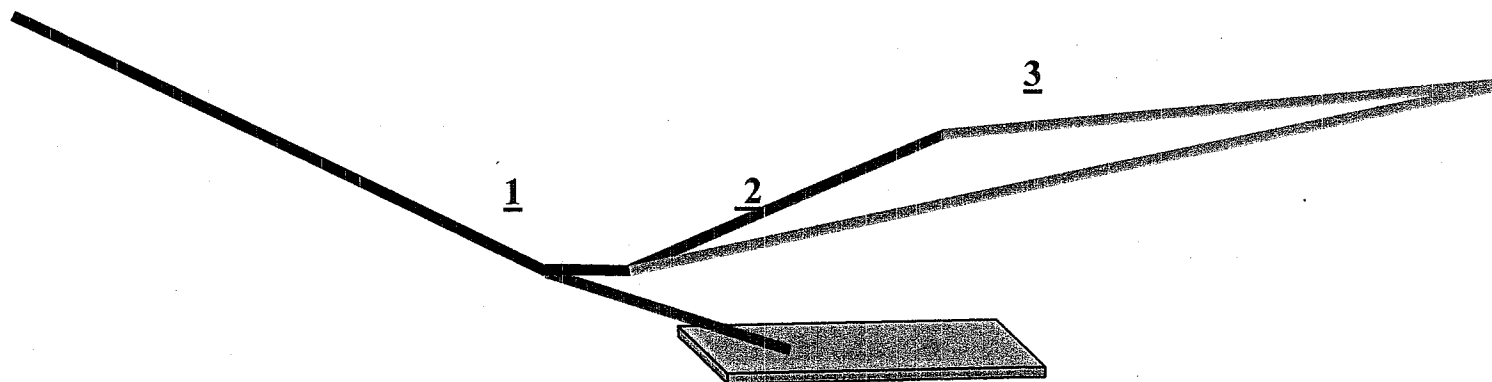
	1	2	3	4	5	6	7
SPEED	Vref+40 min.	Vref+30 min.	Vref+30 min	Vref+20 min	Vref+10 Plus wind factor	Vref Plus wind factor	Max Power Vref+10
FLAPS	UP	15	15	25	40	40	25
GEAR	UP	UP	UP	DOWN	DOWN	DOWN	POSITIVE RATE UP
CHECK LIST	Approach check to flaps	Approach Check complete	Approach Check complete	Before landing Check to flaps	Before landing complete	Before landing complete	After Takeoff

MISSED APPROACH
FALCON FAN JET DA-20



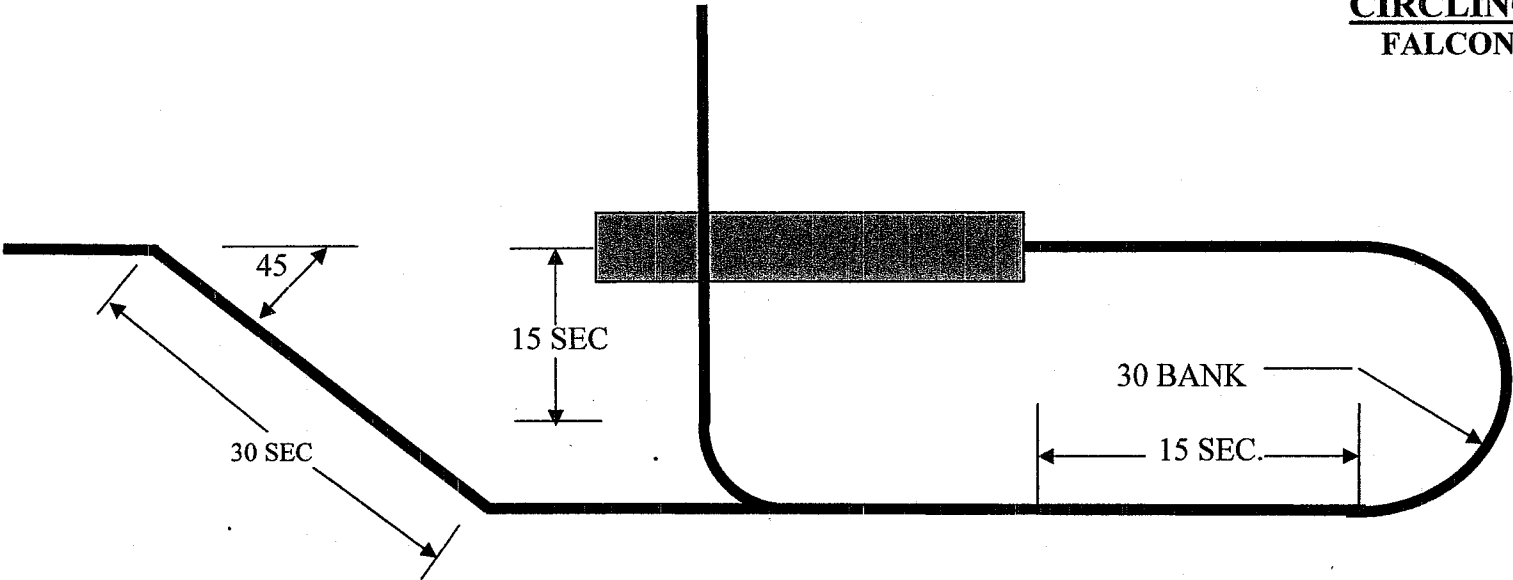
AIRCRAFT	1 (configuration)	2 (with obstacles)	3 (clear of obstacles)
FALCON JET	GEAR DOWN FLAPS FULL FLAPS 20 FOR CIRCLE OR SINGLE Vref+10	TAKEOFF POWER FLAPS 25 POSITIVE RATE GEAR UP Vref+10	CLIMB POWER FLAPS 25 POSITIVE RATE GEAR UP FLAPS 15 ACCELERATE TO Vref+30 FLAPS UP ACCELERATE TO Vref+40

SINGLE ENGINE
MISSED APPROACH
FALCON FAN JET DA-20



AIRCRAFT	1 (configuration)	2 (with obstacles)	3 (clear of obstacles)
FALCON JET	GEAR DOWN FLAPS 25 REF+20+WIND FACTOR	MAX POWER FLAPS 25 POSITIVE RATE GEAR UP REF+20	MAX POWER FLAPS 25 POSITIVE RATE GEAR UP FLAPS 15 ACCELERATE TO REF+30 FLAPS UP ACCELERATE TO 200 KTS.

CIRCLING APPROACHES
FALCON FAN JET DA-20



TURNING DIAMETER IN NAUTICAL MILES

GROUND SPEED IN KNOTS	TURNING DIAMETER WITH 20 DEGREE BANK ANGLE	TURNING DIAMETER WITH 30 DEGREE BANK ANGLE
110	1	0.62
120	1.2	0.74
130	1.4	0.87
140	1.6	1
150	1.8	1.15

CONFIGURATION
AIRCRAFT NORMAL SINGLE ENG.

FALCON FAN JET DA-20	GEAR DOWN FLAPS 25 REF+ 20	GEAR DOWN FLAPS 25 REF+ 20
----------------------------	----------------------------------	----------------------------------

Appendix C -
List of Company Instructors

Royal Air Freight, Inc.

Appendix C
Company Instructors

Aircraft Training Manual

Company Ground Instructors

Name

Subjects

Kirt Kostich
Ron Birnie

C-310/402, EMB-110, LEARJET
C-310/402, LEARJET

Company Flight Instructors

Name

Subjects

Kirt Kostich
Ron Birnie

C-310/402, EMB-110, LEARJET
C-310/402, LEARJET

Approved 

AGL - DETROIT FSDO
Principal Operations
Inspector

Appendix D -
Company Training Forms

N = Insert New Page

Issued To: John J. Appro

Date:

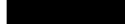
Principal Operations
Inspector

MANUAL DISTRIBUTION CONTROL LOG

[illegible]

Revision: 1

Date: 11/12/01

Initial Approval:  Page: 99
03/25/04
Principal Operations
Inspector

ROYAL AIR FREIGHT AIRCRAFT TRAINING MANUAL

CERTIFICATE OF GROUND TRAINING

*This is to certify that _____ has received the
Ground Training as described below prior to serving or continuing
to serve as _____ under Air Carrier Certificate No. BUHA637C.
This training included but was not necessarily limited to the
applicable areas indicated.*

Type of Training: ☐ Initial ☐ Recurrent
☐ Transition ☐ Upgrade
☐ Differences ☐ Requalification

- ☐ Duties and responsibilities of crewmembers.
- ☐ Appropriate portions of FAR Parts 61, 91, and 135.
- ☐ Contents of the Royal Air Freight, Inc. Air Carrier Certificate and Operations Specifications.
- ☐ Appropriate portions of the Royal Air Freight, Inc. Operations Manual including flight locating procedures.
- ☐ Meteorology.
- ☐ Air traffic control systems, procedures, and phraseology.
- ☐ Navigation, navigational aids, and instrument approaches authorized.

Ground Training Hours: _____

Date: _____

Instructor Signature: _____

Student Signature: _____

Initial Approval _____
Principal Operations
Inspector

**ROYAL AIR FREIGHT, INC.
AIRCRAFT TRAINING MANUAL**

CERTIFICATE OF AIRCRAFT TRAINING

This is to certify that _____ has received the training as described below prior to serving or continuing to serve as under Air Carrier Certificate No. BUHA637C. This training included but was not necessarily limited to the applicable areas indicated.

Aircraft:

Type of Training: ☐ Initial ☐ Recurrent
☐ Transition ☐ Upgrade
☐ Difference ☐ Requalification

- ☐ Weight and balance procedures.
- ☐ Determination of runway limitations for takeoff and landing.
- ☐ Aircraft general description.
- ☐ Performance characteristics.
- ☐ Engines and propellers.
- ☐ Major components.
- ☐ Procedures for recognizing and avoiding severe weather situations.
- ☐ Procedures for operating in or near thunderstorms, turbulent air, icing, hail, and other potentially hazardous meteorological conditions.
- ☐ Operating speeds and limitations.
- ☐ Fuel consumption and cruise control.
- ☐ Flight planning.
- ☐ Each normal and emergency procedure.
- ☐ Approved aircraft flight manual or equivalent.
- ☐ Ground training necessary to ensure qualification in new equipment, procedures, or techniques.
- ☐ Ground Deicing/Anti-icing Program.

Ground Training Hours: _____

Date: _____

Instructor Signature: _____

Initial Approval _____

Student Signature: _____

Principal Operations
Inspector

ROYAL AIR FREIGHT, INC. AIRCRAFT TRAINING MANUAL

CERTIFICATE OF EMERGENCY TRAINING

This is to certify that _____ has received the emergency training as described below prior to serving or continuing to serve as _____ under Air Carrier Certificate No. BUHA637C. This training included but was not necessarily limited to the applicable areas included.

Aircraft:

Type of Training: ☐ Initial ☐ Recurrent
☐ Transition ☐ Upgrade
☐ Differences ☐ Requalification

- ☐ *Instruction in emergency procedures and assignments including crew coordination, if applicable.*
- ☐ *Individual instruction, as applicable, in the location, function, and operation of 1) equipment used in ditching and evacuation, 2) portable fire extinguishers with emphasis on the type to be used on different classes of fire.*
- ☐ *Instruction in the handling of emergency situations, as applicable, including 1) rapid decompression, 2) fire in flight or on the ground with emphasis on electrical equipment and related circuit breakers, 3) ditching and evacuation, 4) illness, injury, or other abnormal situations involving passengers or crewmembers, and 5) hijacking and other unusual situations.*
- ☐ *Review of Royal Air Freight, Inc.'s previous accident and incident history and actual emergency situations.*
- ☐ *The following drills, as applicable, using proper equipment and procedures were performed. 1) ditching, 2) emergency evacuation, 3) fire extinguishing and smoke control, 4) operation and use of emergency exits, 5) use of crew and passenger oxygen, 6) removal of life rafts from aircraft, inflation of life rafts, use of life rafts, and boarding of crew and passengers, 7) donning and inflation of life vests, and 8) operation of pyrotechnic devices.*

Emergency Training Hours: _____ Date: _____

Instructor Signature: _____

Student Signature: _____

Revision: 1

Date: 11/12/01

Initial Approval _____

Principal Operations
Inspector

Page: -115

**ROYAL AIR FREIGHT, INC.
AIRCRAFT TRAINING MANUAL**

CERTIFICATE OF FLIGHT TRAINING

This is to certify that _____ has received the training as described below prior to serving or continuing to serve as under Air Carrier Certificate No. BUHA637C. This training included but was not necessarily limited to the applicable areas indicated.

Aircraft:

Type of Training:

<input type="checkbox"/> Initial	<input type="checkbox"/> Recurrent
<input type="checkbox"/> Transition	<input type="checkbox"/> Upgrade
<input type="checkbox"/> Differences	<input type="checkbox"/> Requalification

- ☐ Preflight.
- ☐ Takeoffs.
- ☐ Inflight maneuvers.
- ☐ Landings.
- ☐ Normal, abnormal, and emergency procedures.
- ☐ Instrument procedures.
- ☐ Communications/navigation procedures.
- ☐ Use of autopilot.
- ☐ Crew coordination.

Flight Training Hours: _____ *Date:* _____

Instructor Signature: _____

Student Signature: _____

Initial Approval _____

Principal Operations
Inspector

ROYAL AIR FREIGHT, INC.
AIRCRAFT TRAINING MANUAL

CERTIFICATE OF INSTRUCTOR TRAINING

This is to certify that _____ has received the ground and/or flight training as described below prior to serving or continuing to serve as a flight instructor under Air Carrier Certificate No. BUHA637C. This training included but was not necessarily limited to the applicable area indicated.

Aircraft:

Type of Training: ☐ *Initial* ☐ *Recurrent* ☐ *Differences*

Ground Training:

- ☐ *The fundamental principals of the teaching-learning process.*
- ☐ *Teaching methods and procedures.*
- ☐ *The instructor-student relationship.*

NOTE: The above training is not required for holders of valid flight instructor certificates.

Flight Training:

- ☐ *Adequate inflight training and practice in the conduct of flight checks from either seat in the required normal, abnormal, and emergency maneuvers to ensure competence to conduct flight training under FAR Part 135.*
- ☐ *The appropriate safety measures to be taken from either pilot seat for abnormal and emergency situations that are likely to develop in training.*
- ☐ *The potential results of improper or untimely safety measures during training.*

Ground Training Hours: *Date:*

Flight Training Hours: *Date:*

Instructor Signature: _____

Student Signature: _____

Initial Approval _____

*Principal Operations
Inspector*

**ROYAL AIR FREIGHT, INC.
AIRCRAFT TRAINING MANUAL**

CERTIFICATE OF CHECK AIRMAN TRAINING

This is to certify that _____ has received the ground and/or flight training as described below prior to serving or continuing to serve as Check Airman under Air Carrier Certificate BUHA637C. This training included but was not necessarily limited to the applicable areas indicated.

Aircraft:

Type of Training: ☐ *Initial* ☐ *Transition* ☐ *Differences*

Ground Training:

- ☐ *Pilot check airman duties, functions, and responsibilities.*
- ☐ *The applicable provisions of FAR 135 and the certificate holder's policies and procedures.*
- ☐ *The appropriate methods, procedures, and techniques for conducting the required checks.*
- ☐ *Proper evaluation of pilot performance including the detection of 1) improper and insufficient training and 2) personal characteristics that could adversely affect safety.*
- ☐ *The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.*

Flight Training:

- ☐ *Adequate inflight training and practice in the conduct of flight checks from either seat in the required normal, abnormal, and emergency maneuvers to ensure competence to conduct flight training under FAR Part 135.*
- ☐ *The appropriate safety measures to be taken from either pilot seat for abnormal and emergency situations that are likely to develop in training*
- ☐ *The potential results of improper or untimely safety measures during training.*

Ground Training Hours:

Date:

Flight Training Hours:

Date:

Instructor Signature: _____

Student Signature: _____

Initial Approval _____

**Principal Operations
Inspector**

ROYAL AIR FREIGHT AIRCRAFT TRAINING MANUAL

RECORD REDUCTION OF TRAINING HOURS

This is to certify that _____ has successfully completed all the curriculum segments including all required subject modules, events, and drills for the training category in less than the specified number of training hours.

Training Category _____
Number of training hours for each curriculum. _____

Basic Indoctrination
Emergency
Special Subjects

Aircraft Ground
Difference
Flight

Previous experience information

Last Proficiency Check attached ? YES ☐ NO ☐
If NO provide Date and Location _____
Number of years FAR135/121 experience _____
Type of Aircraft qualified in _____

Pilots Signature _____

Recommending Instructor

Title

Name

Signature _____

Director of Operations

Name

Signature _____

Approved  *03/04*
AGL - DETROIT FSDO
Principal Operations
Inspector

ROYAL AIR FREIGHT AIRCRAFT TRAINING MANUAL

NEW HIRE TRAINING

has completed the New Hire Training curriculum for the aircraft completing the appropriate curriculum segments on the dates listed below.

Crew Position: ☐ Pilot in Command ☐ Second in Command

Date	Instructor	Hours
<i>Basic Indoctrination</i>		
<i>Aircraft Ground</i>		
<i>Emergency</i>		
<i>Flight</i>		
<i>Difference</i>		
<i>Special Subjects</i>		
<i>Testing and Checking</i>		
<i>Total Hours</i>		

NOTE: Those curriculum segments completed in another curriculum should Have the N/A placed after them in the date completed column. Those Curriculum segments in another curriculum need not be repeated, but the date they were completed during the previous training must be shown Above to ensure that all the requirements have been satisfied.

This curriculum was completed on the following date:

Instructor: _____

Date: _____

Approved _____

AGL - DETROIT FSDO

Principal Operations
Date: 11/12/01
Inspector

Principal Operations
Inspector

Revision: 1

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AIRCRAFT TRAINING MANUAL

INITIAL AIRCRAFT TRAINING

has completed the Initial Aircraft Training curriculum for the aircraft completing the appropriate curriculum segments on the dates listed below.

Crew Position: ☐ Pilot in Command ☐ Second in Command

<i>Date</i>	<i>Instructor</i>	<i>Hours</i>
<i>Aircraft Ground Training</i>		
<i>Difference Training</i>		
<i>Emergency Training</i>		
<i>Special Subjects</i>		
<i>Flight Training</i>		
<i>Testing and Checking</i>		
<i>Total Hours</i>		

Note: Those curriculum segments not required by the curriculum should have N/A placed after them in the date completed column. Those curriculum segments completed in another curriculum need not be repeated, but the date must be shown above to ensure that all the requirements have been satisfied.

This curriculum was completed on the following date.

Instructor: _____

Date: _____

AGL DETROIT FSDO

Principal Operations
Inspector 03/25/04

Principal Operations
Inspector

Revision: 1

Date: 11/12/01

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ROYAL AIR FREIGHT

AIRCRAFT TRAINING MANUAL

RECURRENT TRAINING

has completed the Recurrent Training curriculum for the aircraft completing the appropriate segments on the dates listed below.

Crew Position: ☐ Pilot in Command ☐ Second in Command

Date	Instructor	Hours
Emergency Situation Training		
Emergency Drill Training		
Aircraft Ground Training		
Differences Training		
Special Subjects Training		
Flight Training		
Testing and Checking		
Total Hours		

NOTE: Those curriculum segments not required by the curriculum should have N/A placed after them in the date completed column. Those curriculum segments completed in another curriculum need not be repeated, but the date they were completed during the previous training must be shown above to ensure that all the requirements have been satisfied.

This curriculum was completed on the following date. ~~11/12/01~~

Instructor _____

~~11/12/01~~

Principal Operations
Inspector

Revision: 1

Date: 11/12/01

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ROYAL AIR FREIGHT AIRCRAFT TRAINING MANUAL

REQUALIFICATION TRAINING

has completed the Requalification Training curriculum for the aircraft completing the appropriate segments on the dates listed below.

Crew Position: ☐ Pilot in Command ☐ Second in Command

<i>Date</i>	<i>Instructor</i>	<i>Hours</i>
<i>Aircraft Ground Training</i>		
<i>Differences Training</i>		
<i>Emergency Training</i>		
<i>Special Subjects</i>		
<i>Flight Training</i>		
<i>Testing and Checking</i>		
<i>Total Hours</i>		

NOTE: Those curriculum segments not required by the curriculum should have N/A placed after them in the date completed column. Those curriculum segments completed in another curriculum need not be repeated, but the date they were completed during the previous training must be shown above to ensure that all the requirements have been satisfied.

This curriculum was completed on the following date. [REDACTED]

Instructor: _____

Date: _____

Revision: 1

Date: 11/12/01

Principal Operations
Inspector

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ROYAL AIR FREIGHT AIRCRAFT TRAINING MANUAL

TRANSITION TRAINING

has completed the Transition Training curriculum for the aircraft completing the appropriate curriculum segments on the dates listed below.

Crew Position: ☐ Pilot in Command ☐ Second in Command

Date	Instructor	Hours
<i>Aircraft Ground Training</i>		
<i>Differences Training</i>		
<i>Emergency Training</i>		
<i>Special Subjects</i>		
<i>Flight Training</i>		
<i>Testing and Checking</i>		
<i>Totals Hours</i>		

NOTE: Those curriculum segments not required by the curriculum should have N/A placed after them in the date completed column. Those curriculum segments completed in another curriculum need not be repeated, but the date they were completed during the previous training must be shown above to ensure that all the requirements have been satisfied.

This curriculum was completed on the following date.

Instructor: *Curved* *03/25/01* Date:

Principal Operations
Inspector

ROYAL AIR FREIGHT AIRCRAFT TRAINING MANUAL

UPGRADE TRAINING

has completed the Upgrade Training curriculum for the aircraft completing the appropriate curriculum segments on the dates listed below.

Crew Position: ☐ Pilot in Command ☐ Second in Command

<i>Date</i>	<i>Instructor</i>	<i>Hours</i>
<i>Aircraft Ground Training</i>		
<i>Differences Training</i>		
<i>Emergency</i>		
<i>Special Subjects</i>		
<i>Flight Training</i>		
<i>Testing and Checking</i>		
<i>Total Hours</i>		

NOTE: Those curriculum segments not required by the curriculum should have N/A placed after them in the date completed column. Those curriculum segments completed in another curriculum need not be repeated, but the date they were completed during the previous training must be shown above to ensure that all the requirements have been satisfied.

This curriculum was completed on the following date,

Instructor: _____

Approved: _____

AGL / DET Date: _____
Principal Operations
Inspector

Principal Operations
Inspector

FAR Part 135
Compliance Letter

FAR
Comment

Method of Compliance

Reference

135.323 TRAINING PROGRAM: GENERAL.

- (a) Royal Air Freight, Inc., as required by 135.341 will:

- (1) Establish, obtain the appropriate initial and final approval of, and provide a training program that meets this subpart and that ensures that each crewmember, flight instructor, check airman, and each person assigned duties for the carriage and handling of hazardous materials (as defined in 49 CFR 171.8) is adequately trained to perform their assigned duties.
- (2) Provide adequate ground and flight training facilities and properly qualified ground instructors for the training required by this subpart.
- (3) Provide and keep current for each aircraft type used and, if applicable, the particular variations within the aircraft type, appropriate training material, examinations, forms, instructions, and procedures for use in conducting the training and checks required by this subpart.
- (4) Provide enough flight instructors, check airmen, and simulator instructors to conduct required flight training and flight checks, and simulator training courses allowed under this subpart.

See separate
HAZMAT Training
Manual

- (b) Whenever a crewmember who is required to take recurrent training under this subpart completes the training in the calendar month before, or the calendar month after, the month in which that training is required, the crewmember is considered to have completed it in the calendar month in which it was required.

FAR Part 135 Letter of Compliance

Manual

FAA
Reference

FAR

Method of Compliance

Comment

- (c) Each instructor, supervisor, or check airman who is responsible for a particular ground training subject, segment of flight training, course of training, flight check, or competence check under this Part shall certify as to the proficiency and knowledge of the crewmember, flight instructor, or check airman concerned upon completion of that training or check. That certification shall be made a part of the crewmember's record. When the certification required by this paragraph is made by an entry in a computerized recordkeeping system, the certifying instructor, supervisor, or check airman, must be identified with that entry. However, the signature of the certifying instructor, supervisor, or check airman, is not required for computerized entries.
- (d) Training subjects that apply to more than one aircraft or crewmember position and that have been satisfactorily completed during previous training while employed by Royal Air Freight, Inc. for another aircraft or another crewmember position, need not be repeated during subsequent training other than recurrent training.
- (e) Aircraft simulators and other training devices may be used in Royal Air Freight, Inc.'s training program if approved by the Administrator.



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135.325 TRAINING PROGRAM AND REVISION: INITIAL AND FINAL APPROVAL.

- (a) In order to obtain initial and final approval of a training program, or a revision to an approved training program, Royal Air Freight, Inc. has submitted to the Administrator-
 - (1) An outline of the proposed or revised curriculum, that provides enough information for a preliminary evaluation of the proposed training program or revision; and
 - (2) Additional relevant information that may be requested by the Administrator.
- (b) If the proposed training program or revision complies with this subpart, the Administrator will grant initial approval in writing after which Royal Air Freight, Inc. may conduct the training under that program. The Administrator then evaluates the effectiveness of the training program and advises Royal Air Freight, Inc. of deficiencies, if any, that must be corrected.
- (c) The Administrator will grant final approval of the proposed training program or revision if Royal Air Freight, Inc. shows that the training conducted under the initial approval in paragraph (b) of this section ensures that each person who successfully completes the training is adequately trained to perform that person's assigned duties.
- (d) Whenever the Administrator finds that revisions are necessary for the continued adequacy of a training program that has been granted final approval, Royal Air Freight, Inc. shall, after notification by the Administrator, make any changes in the program that are found necessary by the Administrator. Within 30 days after Royal Air Freight, Inc. received the notice, it may file a petition to reconsider the notice with the Administrator.

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The filing of a petition to reconsider stays the notice pending a decision by the Administrator. However, if the Administrator finds that there is an emergency that requires immediate action in the interest of safety, the Administrator may, upon a statement of the reasons, require a change effective without stay.

135.327 TRAINING PROGRAM: CURRICULUM.

- (a) Royal Air Freight, Inc. has prepared and will keep current a written training program curriculum for each type of aircraft for each crewmember required for that type aircraft. The curriculum includes ground and flight training required by this subpart.
- (b) Each training program curriculum includes the following:
 - (1) A list of principal ground training subjects, including emergency training subjects, that are provided. TM Section 8
 - (2) A list of all the training devices, mock-ups, systems trainers, procedures trainers, or other training aids that the certificate holder will use.
 - (3) Detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the inflight portion of flight training and flight checks. TM Section 9
TM Appendix A

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135.329	CREWMEMBER TRAINING REQUIREMENTS.		
(a)	Royal Air Freight, Inc. has included in its training program the following initial and transition ground training as appropriate to the particular assignment of the crewmember:		
	(1) Basic indoctrination ground training for newly hired crewmembers including instruction in at least the-		
	i. Duties and responsibilities of crewmembers as applicable;	Module 1	
	ii. Appropriate provisions of this chapter;	Module 2	
	iii. Contents of the Company operating certificate and operations specifications (not required for flight attendants); and	Module 3	
	iv. Appropriate portions of the Company Operating Manual.	Module 3	
	(2) The initial and transition ground training in 135.345 and 135.349, as applicable.	See Ref 135.345	See Ref 135.349
	(3) Emergency training in 135.331.	See Ref 135.331	
(b)	Each training program provides the initial and transition flight training in 135,347, as applicable.	See Ref 135.347	
(c)	Each training program provides recurrent ground and flight training in 135.351.	See Ref 135.351	
(d)	Upgrade training in 135.345 and 135.347 for a particular type aircraft is included in the training program for crewmembers who have qualified and served as second in command on that aircraft.	See Ref 135.345	
e)	In addition to initial, transition, upgrade and recurrent training, each training program provides ground and flight training, instruction, and practice necessary to ensure that each crewmember-		

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- (1) Remains adequately trained and currently proficient for each aircraft, crewmember position, and type of operation in which the crewmember serves; and
- (2) Qualifies in new equipment, facilities, procedures, and techniques, including modifications to aircraft.

135.331 CREWMEMBER EMERGENCY TRAINING.

- (a) Each training program provides emergency training under this section for each aircraft type, model, and configuration, each crewmember, and each kind of operation conducted, as appropriate for each crewmember and Royal Air Freight, Inc.
- (b) Emergency training provides the following:
 - (1) Instruction in emergency assignments and procedures, including coordination among crewmembers. Module 12
 - (2) Individual instruction in the location, function, and operation of emergency equipment including-
 - i. Equipment used in ditching and evacuation; N/A
 - ii. First aid equipment and its proper use; and Module 15
 - iii. Portable fire extinguishers, with emphasis on the type of extinguisher to be used on different classes of fires. Module 22
 - (3) Instruction in the handling of emergency situations including-
 - i. Rapid decompression; Module 18
 - ii. Fire in flight or on the surface and smoke control procedures with emphasis on electrical equipment and related circuit breakers found in cabin areas; Module 14
 - iii. Ditching and evacuation; N/A
 - iv. Illness, injury, or other abnormal situations involving passengers or crewmembers; and Module 16
 - v. Hijacking and other unusual situations. Module 21

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	(4) Review of the certificate holder's previous aircraft accidents and incidents involving actual emergency situations.	Module 19	
(c)	Each crewmember must perform at least the following emergency drills, using the proper emergency equipment and procedures, unless the Administrator finds that, for a particular drill, the crewmember can be adequately trained by demonstration:		
	(1) Ditching, if applicable.	N/A	
	(2) Emergency evacuation.	Module 17	
	(3) Fire extinguishing and smoke control.	Module 14	
	(4) Operation and use of emergency exits, including deployment and use of evacuation chutes, if applicable.	Module 24	
	(5) Use of crew and passenger oxygen.	Module 23	
	(6) Removal of life rafts from the aircraft, inflation of the life rafts, use of life lines, and boarding of passengers and crew, if applicable.	N/A	
	(7) Donning and inflation of life vest and the use of other individual flotation devices, if applicable.	N/A	
(d)	Crewmembers who serve in operations above 25,000 feet must receive instruction in the following:		
	(1) Respiration.	Module 18	
	(2) Hypoxia.	Module 18	
	(3) Duration of consciousness without supplemental oxygen at altitude.	Module 18	
	(4) Gas expansion.	Module 18	
	(5) Gas bubble formation.	Module 18	
	(6) Physical phenomena and incidents of decompression.	Module 18	
135.333	TRAINING REQUIREMENTS: HANDLING AND CARRIAGE OF HAZARDOUS MATERIALS		
(a)	Not applicable. The Company has elected not to accept Hazardous Materials.		
(b)	Not applicable. The Company has elected not to accept Hazardous Materials.		
(c)	Royal Air Freight, Inc. will ensure that each crewmember is adequately trained to recognize those items classified as hazardous materials.		

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- (d) Not applicable. The Company has elected not to accept Hazardous Materials.

135.335 APPROVAL OF AIRCRAFT SIMULATORS AND OTHER TRAINING DEVICES.

Not applicable. Company does not use any simulators

135.337 TRAINING PROGRAM: CHECK AIRMEN AND INSTRUCTOR QUALIFICATIONS.

- (a) Royal Air Freight, Inc. will not use a person, nor may any person serve, as a flight instructor or check airman in a training program established under this subpart unless, for the particular aircraft type involved, that person-
- (1) Holds the airman certificate and ratings that must be held to serve as a pilot in command in operations under this Part;
 - (2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, required to serve as a pilot in command in operations under this Part;
 - (3) Has satisfactorily completed the appropriate proficiency or competency checks required to serve as a pilot in command in operations under this Part;
 - (4) Has satisfactorily completed the applicable training requirements of 135.339;
 - (5) Holds a Class 1 or Class II medical certificate required to serve as a pilot in command in operations under this Part;
 - (6) In the case of a check airman, has been approved by the Administrator for the airman duties involved; and
 - (7) In the case of a check airman used in an aircraft simulator only, holds a Class III medical certificate.
- (b) Not applicable. Company does not use any simulators.

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135.339	CHECK AIRMEN AND FLIGHT INSTRUCTORS: INITIAL AND TRANSITION TRAINING.		
(a)	The initial and transition ground training for pilot check airmen includes the following:		
	(1) Pilot check airman duties, functions, and responsibilities.	Module 82	
	(2) The applicable provisions of this chapter and certificate holder's policies and procedures.	Module 82	
	(3) The appropriate methods, procedures, and techniques for conducting the required checks.	Module 82	
	(4) Proper evaluation of pilot performance including the detection of-	Module 82	
	i. Improper and insufficient training; and	Module 82	
	ii. Personal characteristics that could adversely affect safety.	Module 82	
	(5) The appropriate corrective action for unsatisfactory checks.	Module 82	
	(6) The approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.	Module 82	
(b)	The initial and transition ground training for pilot flight instructors, except for the holder of a valid flight instructor certificate, includes the following:	Module 82	
	(1) The fundamental principles of the teaching-learning process.	Module 82	
	(2) Teaching methods and procedures.	Module 82	
	(3) The instructor-student relationship.	Module 82	
(c)	The initial and transition flight training for pilot check airmen and pilot flight instructors includes the following:	Module 83	
	(1) Enough inflight training and practice in conducting flight checks from the left and right pilot seats in the required normal, abnormal, and emergency maneuvers to ensure that person's competence to conduct the pilot flight checks and flight training under this subpart.	Module 83	

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	(2) The appropriate safety measures to be taken from either pilot seat for emergency situations that are likely to develop in training.	Module 83	
	(3) The potential results of improper or untimely safety measures during training.	Module 83	
	The requirements of paragraphs (2) and (3) of this paragraph may be accomplished in flight or in an approved simulator.		
135.341	PILOT AND FLIGHT ATTENDANT CREWMEMBER TRAINING PROGRAMS.		
(a)	Royal Air Freight, Inc. has established and will maintain an approved pilot training program that is appropriate to the operations to which each pilot is to be assigned, and will ensure that they are adequately trained to meet the applicable knowledge and practical testing requirements of 135.293 through 135.301.		
(b)	Royal Air Freight, Inc.'s training program includes ground and flight training curriculums for		
	(1) Initial training;	TM Section 2	
	(2) Transition training;	TM Section 3	
	(3) Upgrade training;	TM Section 6	
	(4) Differences training;	TM Section 7	
	(5) Recurrent training.	Modules 76 & 77	
(c)	Royal Air Freight, Inc. will provide current and appropriate study materials for use by each required pilot.	TM Section 3	
(d)	Royal Air Freight, Inc. will furnish copies of the pilot training program, and all changes and additions, to the assigned representative of the Administrator. Curricula that follow FAA published curricula may be cited by reference in the copy of the training program furnished to the representative of the Administrator and need not be furnished with the program.		

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135.343 CREWMEMBER INITIAL AND RECURRENT TRAINING REQUIREMENTS.

Royal Air Freight, Inc. will not use a person, nor may any person serve, as a crewmember in operations under this Part, unless that crewmember has completed the appropriate initial or recurrent training phase of the training program appropriate to the type of operation in which the crewmember is to serve since the beginning of the 12th calendar month before that service.

135.345 PILOTS: INITIAL, TRANSITION, AND UPGRADE GROUND TRAINING.

Initial, transition, and upgrade ground training for pilots includes instruction in at least the following, as applicable to their duties:

(a) General subjects-

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| (1) The certificate holder's flight locating procedures; | Module 4 |
| (2) Principles and methods for determining weight and balance, and runway limitations for takeoff and landing; | Module 5
Module 26 |
| (3) Enough meteorology to ensure a practical knowledge of weather phenomena, including the principles of frontal systems, icing, fog, thunderstorms, windshear and, if appropriate, high altitude weather situations; | Module 7 |
| (4) Air traffic control systems, procedures, and phraseology; | Module 9 |
| (5) Navigation and the use of navigational aids, including instrument approach procedures; | Module 11 |
| (6) Normal and emergency communication procedures; | Module 9 |
| (7) Visual cues before and during descent below DH or MDA; and | Module 8 |
| (8) Other instructions necessary to ensure the pilot's competence. | |

(b) For each aircraft type-

- | | |
|----------------------------------|-----------|
| (1) A general description; | Module 35 |
| (2) Performance characteristics; | Module 34 |
| (3) Engine; | Module 38 |
| (4) Major components; | Module 35 |

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	(5) Major aircraft systems (i.e., flight controls, electrical, and hydraulic). other systems, as appropriate, principles or normal, abnormal, and emergency operations, appropriate procedures and limitations;	Module 39	
	(6) Procedures for -		
	i. Recognizing and avoiding severe weather situations;	Module 29	
	ii. Escaping from severe weather situations, in case of inadvertent encounters, including low-altitude windshear (except that rotorcraft pilots are not required to be trained in escaping from low-altitude windshear); and	Module 29	
	iii. Operating in or near thunderstorms (including best penetrating altitudes), turbulent air (including clear air turbulence), icing, hail, and other hazardous meteorological conditions;	Module 29	
	(7) Operating limitations;	Module 34	
	(8) Fuel consumption and cruise control;	Module 47	
	(9) Flight planning;	Module 30	
	(10) Each normal and emergency procedure;	Module 31	
	(11) The approved Aircraft Flight Manual, or equivalent.	Module 31	
135.347	PILOTS: INITIAL, TRANSITION, UPGRADE, AND DIFFERENCES FLIGHT TRAINING.		
(a)	Initial, transition, upgrade, and differences training for pilots includes flight and practice in each of the maneuvers and procedures in the approved training program curriculum.		
(b)	The maneuvers and procedures required by paragraph (a) of this section will be performed in flight.		
(c)	Not applicable. Royal Air Freight, Inc. does not use any simulator training.		

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Reference135.349 FLIGHT ATTENDANTS: INITIAL AND
TRANSITION GROUND TRAINING.

Not applicable. Royal Air Freight, Inc.
does not use any flight attendants.

135.351 RECURRENT TRAINING.

- (a) Royal Air Freight, Inc. will ensure that each crewmember receives recurrent training and is adequately trained and currently proficient for the type aircraft and crewmember position involved.
- (b) Recurrent ground training for crewmembers includes at least the following:
 - (1) A quiz or other review to determine the crewmember's knowledge of the aircraft and crewmember position involved.
 - (2) Instruction as necessary in the subjects required for initial ground training by this subpart, as appropriate, including low-altitude windshear training as prescribed in FAR 135.345 of this part and emergency training.
- (c) Recurrent flight training for pilots must include, at least, flight training in the maneuvers or procedures in this subpart, except that satisfactory completion of the check required by 135.293 within the preceding 12 calendar months may be substituted for recurrent flight training.

135.353 PROHIBITED DRUGS.

- (a) Royal Air Freight, Inc. will provide each employee performing a function listed in Appendix I to Part 121 of this chapter and his or her supervisor with the training specified in that appendix.
- (b) Royal Air Freight, Inc. will not use any contractor to perform a function specified in Appendix I to Part 121 of this chapter unless that contractor provides each of its employees performing that function for Royal Air Freight, Inc. and his or her supervisor with the training specified in that appendix.

8400.10 Cross Reference

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Cross Reference

8400.10

Flightcrew Basic Indoctrination Training
Subject Area 1: Operator-Specific Training
See 8400.10 Table 3.2.3.2 Page 3-210

8400.10

Paragraph	Training Subjects	Module #
377 a	Company History, Organization, and Description . . .	1
377 a	Operational Concepts, Scope, and Policy	1
377 a	General Forms, Records, and Administrative Procedures	1
377 a	Employee Standards and Rules of Conduct	1
377 a	Employee Compensation and Benefits	1
377 a	Contracts	1
377 b	Overview of FAR's	2
377 c	Certificate and Operations Specifications	3
377 c	Company Manuals	3
379 a	Flight Control	4
No Ref	Weight and Balance	5

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Cross Reference

8400.10

Flightcrew Basic Indoctrination Training
Subject Area 2: Airman-Specific Training
See 8400.10 Table 3.2.3.2 Page 3-211

8400.10

Paragraph	Training Subjects	Module #
379 b	Principles of Weight and Balance	5
379 c	Aircraft Performance and Airport Analysis	6
379 d	Principles of Meteorology	7
379 e	Principles of Navigation	8
379 f	Airspace and ATC Procedures	9
379 g	En Route and Terminal Charting and Flight Planning	10
379 h	Instrument Procedures	11

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Cross Reference

8400.10

Flight Crewmember General Emergency Training
Subject Area 1: Emergency Situation Training
See 8400.10 Table 3.2.4.2 Page 3-225

8400.10

Paragraph	Training Subjects	Module #
.....
405 a	Duties and Responsibilities	12
405 b	Crew Coordination	13
405 c	Aircraft Fires	14
405 d	First Aid Equipment	15
405 e	Illness, Injury, and Basic First Aid	16
405 f	Ground Evacuation	17
405 g	Ditching Procedures	N/A
405 h	Rapid Decompression	18
405 i	Previous Accidents and Incidents	19
405 j	Crew Incapacitation	20
405 k	Hijack	21

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Cross Reference

8400.10

Flight Crewmember General Emergency Training
Subject Area 2: Emergency Drill Training
See 8400.10 Table 3.2.4.2 Page 3-226

8400.10

Paragraph

Training Subjects

Module #

407 a	Hand-Held Fire Extinguishers	22
407 b	Emergency Oxygen System	N/A
407 c	Emergency Exits	24
407 d	Life Preservers	N/A

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Cross Reference

8400.10

Aircraft Ground Training
Subject Area 1: General Operational Subjects
See 8400.10 Table 3.2.5.1 Page 3-244

8400.10

Paragraph	Training Subjects	Module #
439 a	Flight Control	25
439 b	Weight and Balance	26
439 b3	Operations Specifications, Authorizations and Limitations	27
439 c	Adverse Weather	29
439 b5	Flight Planning	30
Table 3.2.5.1	Aircraft Flight Manual	31
Table 3.2.5.1	Company Operations Manual	32
439 d	Aircraft Avionics Operation	33
439 e	Performance	34

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8400.10

Aircraft Ground Training
Subject Area 2: Aircraft Systems
See 8400.10 Table 3.2.5.1 Page 3-245

8400.10

Paragraph

Training Subjects

Module #

441 a	Aircraft General	35
441 k	Equipment and Furnishings	36
441 t	Emergency Equipment	37
441 b	Powerplants	38
441 c	Electrical	39
441 f	Pneumatic	N/A
441 g	Air Conditioning and Pressurization	41
TBD	Ground Iceing Conditions	42
441 j	Ice and Rain Protection	N/A
441 u	APU	N/A
441 d	Hydraulics	N/A
441 i	Landing Gear and Brakes	45
441 h	Flight Controls	46
441 e	Fuel	47
441 o	Communications Equipment	48
441 n	Flight Instruments	49
441 l	Navigation Equipment	50
441 m	Autopilot	N/A
441 p	Warning Systems	52
441 q	Fire and Overheat Protection	53
441 r	Oxygen	N/A
441 s	Lighting	55

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8400.10

Aircraft Ground Training
Subject Area 3: Aircraft Systems Integration
See 8400.10 Table 3.2.5.1 Page 3-246

8400.10

Paragraph	Training Subjects	Module #
443 c1	Use of Checklist	56
443 c6	Cockpit Familiarization	57
443 c2	Preflight Planning	58
Table 3.2.5.1	Inflight Planning	58
443 c3	Use of Weather Radar/CRT's	N/A
443 c4	Navigation Systems	60
Table 3.2.5.1	Communication Systems	60
443 c5	Autopilot/Flight Director	N/A

Royal Air Freight, Inc.

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8400.10

Flight Training
Transport Category Airplanes
See 8400.10 Table 3.2.6.4 Page 3-265

Flight Phase	Module #
Preparation	62
Surface Operation	63
Takeoff	64
Climb	66
En Route	67
Descent	68
Approaches	69
Landings	70
After Landing	71
Other Flight Procedures	72
Normal/Abnormal Systems Procedures	74
Emergency Systems Procedures	75