

**FLIGHT STANDARDIZATION BOARD REPORT  
VIKING AIR LIMITED  
MODEL DHC-6-300 TWIN OTTER**



**Date: 08/25/2010**

**FINAL**

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MANAGEMENT COORDINATION SHEET

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## RECORD OF REVISIONS

<b>Revision</b>	<b>Sections</b>	<b>Date</b>	<b>Chairman</b>
0	All	08/25/2010	Troy A. Zwicke

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# 1. PURPOSE AND APPLICABILITY

## Purpose

This FSB report specifies master training, checking, and currency requirements applicable to flight crewmembers operating Viking Air Limited (VAL) Model DHC-6, Series 300 when eligible and approved to be operated up to 14,000 pounds. This report provides guidance to FAA Inspectors and operators under 14 CFR Part 91, 14 CFR Part 135, 14 CFR Part 141, 14 CFR Part 142, Designated Check Airmen, Pilot Proficiency Examiners and other training providers.

The DHC-6, Series 300 Flight Standardization Board (FSB) convened to evaluate proposed training, checking, and currency requirements for pilots operating the DHC-6, Series 300 aircraft. The FSB evaluated operating characteristics and techniques to propose training, checking and currency requirements applicable to the DHC-6, Series 300 aircraft. The objectives of this FSB:

Determination of Pilot Type Rating.

Identify training, checking and currency requirements.

Establish Master Common Requirements for the DHC-6 aircraft.

Review AFM and Checklist procedures for operational suitability.

Describe acceptable training program and training device characteristics.

## 1.2 Applicability

In accordance with existing Title 14 CFR, the provisions of this report apply to all operations of a DHC-6, Series 300 airplane when eligible and approved to be operated in excess of 12,500 pounds and up to 14,000 pounds. This report is applicable to all training and checking conducted in the aircraft, as well as the currency and experience provisions. This report is effective until amended, superseded or withdrawn by subsequent revision.

The guidelines in this report apply to: Aviation Safety Inspectors (ASI), Principal Operations Inspectors (POI), Training Center Program Managers (TCPM), Aircrew Program Managers (APM), 14 CFR Part 135 Air Carrier Check Airmen and Instructors, Airline Transport Pilots instructing in air transportation service, Certificated Flight Instructors, Aircrew Program Designees (APD), and Training Center Evaluators (TCE).

## 1.3 Eligibility

The DHC-6-300 aircraft must be eligible and approved to operate at the increased gross weight and adhere to all procedures, requirements and limitations contained in the FAA Approved Airplane Flight Manual Supplement.

## 2. TYPE RATING DETERMINATION

### 2.1 Background

In conducting its evaluation of the Viking Air Limited DHC-6 Twin Otter, Series 300, the Board utilized the evaluation process outlined in Advisory Circular AC 120-53A and the Common Procedures Document for Conducting Operational Evaluation Boards (JAA, TCCA, FAA) dated 10 June 2004. The Board evaluated the DHC-6 Twin Otter, Series 300 design and operating characteristics in the Areas of Operation required for Airline Transport Pilot and Aircraft Type Rating by the Practical Test Standard (PTS). For the purpose of design and operating characteristics the DHC-6 is a Civil Air Regulations (CAR) 3, Multiengine, Turbo-Propeller, Land aircraft that requires One (1) Pilot Flight Crewmember.

The DHC-6-300 aircraft, when eligible and approved can operate up to 14,000 pounds as a large aircraft. The aircraft is powered by 2 PT6A-27 engines that are de-rated to produce 620 s.h.p. (shaft horse power). Flight controls are mechanical for roll, pitch and yaw. Flaps are hydraulically driven and no leading edge devices are installed. The avionics is a standard six (6) pack instrumentation system. The aircraft can be equipped with an autopilot.

The FSB requested and received a DHC-6, Series 300 Application for Pilot Type Rating from R. W. Martin, Inc. (RWM). T5 tests were conducted to validate proposed training, checking and currency. FSB members completed ground school for the DHC-6-300 aircraft provided by R. W. Martin, Inc. incorporating both the normal and increased maximum gross weight supplement. No approved simulator or training device was available at the time of the FSB. The DHC-6 was utilized for system integration training and checklist review with Normal, Abnormal and Emergency Procedures for both normal and increased gross weight aircraft. Flight training was conducted in the aircraft by RWM. Training was consistent with that proposed by RWM and provided under the supervision of RWM.

### 2.2 Determination of Pilot Type Rating

In accordance with 14 CFR Part 1 and 61, the pilot type rating for the DHC-6-300 when eligible and approved to operate in excess of 12,500 pounds is designated as "DHC-6". All maneuvers required by the Airline Transport Pilot and Aircraft Type Rating Practical Test Standards are applicable. No aircraft specific flight maneuvers are specified. Airmen who successfully complete a practical examination as a single pilot in the DHC-6-300 approved to operate in excess of 12,500 pounds receive a "**DHC-6**" type rating on their pilot certificate. The DHC-6 aircraft requires one pilot for all operations.

### 2.3 Determination of Second-In-Command Pilot Type Rating

The Second-In-Command (SIC) Pilot Type Rating (DHC-6 SIC PRIVILEGES ONLY) may be issued in accordance with 14 CFR Part 61.55 provided the operation, equipment or ICAO require the use of a SIC.

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### **3. MASTER REQUIREMENTS (MCR and MDR)**

#### 3.1 Master Common Requirements (MCR)

Take off Flaps 10

“No Flap” Approach & Landing is not waived. Training and checking is required.

Landing Minima Category for the DHC-6-300 is generally Category “B” for normal straight in approaches (Flaps 20) and normal circling approaches (Flaps 20).

Normal straight in instrument approaches are flown with (Flaps 20) from the FAF and use of the auto-pilot is recommended.

Normal Circling approaches are flown (Flaps 20) from the FAF to landing.

##### 3.1.1 Areas of Special Emphasis

The FSB has determined that certain aspects of pilot knowledge, skills and abilities are critical to the safe operation of the DHC-6-300 and must be emphasized during training and evaluated during checking for the DHC-6-300.

Taxiing the aircraft

Cockpit Resource Management (CRM) associated with single pilot operations.

Integrated use of the autopilot including knowledge of selectable functions, capabilities and airspeed limitations.

GPS (if equipped) and Ground Based navigation information must be understood to safely and reliably operate the aircraft during instrument approaches, including the use of vertical navigation functions.

Crosswind landing techniques at maximum demonstrated crosswind components.

Weight and Balance (W&B) calculations and Center of Gravity (CG) computations.

Supplemental Operating Limitations and Procedures.

#### 3.2 Master Difference Requirements (MDR)

The Master Difference Requirements for the DHC-6-300 is reserved for future variants because no common variant was evaluated by the FSB.

### **4. OPERATOR DIFFERENCE REQUIREMENTS TABLES (ODR)**

The Operator Difference Requirements for the DHC-6-300 is reserved for future variants.

Presently, no variant exist or were evaluated by the FSB.

## **5. FSB SPECIFICATIONS FOR TRAINING**

### 5.1 Training Requirements

Training must meet 14 CFR Part 61 requirements for the addition of a DHC-6 Type Rating. The provisions of this FSB report are intended to apply to airmen with no previous DHC-6 experience. Training must include the subjects and maneuvers listed in the Areas of Operation required for Airline Transport Pilot and Aircraft Type Rating by the Practical Test Standard (PTS), Master Requirements and Areas of Special Emphasis of this report. All training and checking must be conducted in accordance with the FAA Approved Airplane Flight Manual (AFM) procedures, Airplane Flight Manual Supplement (AFMS) and Pilot Operating Handbook (POH) recommended maneuvers.

Level E training is required. Simulator Task Credit may be given in accordance with Airline Transport Pilot and Aircraft Type Rating Practical Test Standards.

The following subject areas are applicable to the DHC-6-300 and are critical to safe operation of the DHC-6-300 aircraft and must be included for a comprehensive initial training program:

Takeoff Safety, performance planning & decisions, contaminated runways  
High altitude operations and aerodynamics  
Traffic Collision Avoidance System (TCAS) and Terrain Awareness System (TAWS)  
Windshear detection, avoidance and escape procedures  
Long Range Navigation (LRN) and Extended Overwater operations, as applicable  
In-flight and Ground Icing Awareness  
Cockpit / Crew Resource Management (CRM) and Controlled Flight Into Terrain (CFIT) procedures

## **6. FSB SPECIFICATIONS FOR CHECKING**

### 6.1 Checking Requirements

Checking requirements are Level E, (14 CFR Part 61.56, 61.63, 61.157, and 135.293 as applicable) will be administered in accordance with the Airline Transport Pilot and Aircraft Type Rating Practical Test Standards.

The DHC-6-300 is considered a separate type of aircraft as described in 14 CFR 135.293(b) for the purpose of recurrent checking. Twelve month testing currency applies to the DHC-6-300 exclusively for compliance with FAR 135.293.

All checking must include evaluation of the subjects and maneuvers listed in the Master Requirements, Areas of Special Emphasis, of this report and the following subject areas:

Takeoff Safety, performance planning & decisions, contaminated runways  
High altitude operations and aerodynamics  
Traffic Collision Avoidance System (TCAS) and Terrain Awareness System (TAWS)  
Windshear detection, avoidance and escape procedures  
Long Range Navigation (LRN) and Extended Overwater operations, as applicable  
In-flight and Ground Icing Awareness

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Cockpit / Crew Resource Management (CRM) and Controlled Flight Into Terrain (CFIT) procedures

A pilot being checked for the addition of a type rating or PIC proficiency check must occupy the left pilot seat due to the lack of nose wheel steering and inability to demonstrate aircraft ground handling from the right seat.

## **7. FSB SPECIFICATIONS FOR CURRENCY**

Currency requirements are Level E, (61.55, 61.56, 61.57, and 135.247 as applicable) for the DHC-6-300 are Level E and require DHC-6-300 experience in accordance with applicable 14 CFR.

Instrument experience to satisfy FAR 61.57(c) is not DHC-6-300 exclusive provided DHC-6-300 currency requirements are maintained.

Re-establishing currency for the DHC-6-300 is in accordance with existing 14 CFR and FAA guidance for Recency of Experience and Requalification.

## **8. SPECIFICATIONS FOR IOE / SOE / SLF**

Initial Operating Experience, Supervised Operating Experience, and Supervised Line Flying are in accordance with existing 14 CFR for assigned flight crew position in the DHC-6-300.

For the purpose of obtaining operating experience or receiving a line check, the Pilot-in-Command of the DHC-6-300 aircraft must occupy the left pilot seat due to the lack of nose wheel steering and inability to demonstrate aircraft ground handling from the right seat.

## **9. ADDITIONAL FSB FINDINGS AND RECOMMENDATIONS**

### 9.1 Instructors, Check Airman and Examiners

For the purpose of checking, FAA Aviation Safety Inspectors, Designated Pilot Examiners, Training Center Evaluators and Check Airmen must have a DHC-6 type rating and be PIC qualified in the DHC-6-300.

Designated Pilot Examiners, Training Center Evaluators and Check Airmen should have 100 hours PIC in the DHC-6-300 that is eligible and operated in excess of 12,500 pound and maintain currency in accordance with this report.

## **10. AIRCRAFT REGULATORY COMPLIANCE CHECKLIST**

A Compliance Checklist was not completed for the DHC-6-300.

## **11. FSB SPECIFICATIONS FOR SIMULATORS AND DEVICES**

Presently, there are no approved simulators with increased gross weight performance data. System Integrated Training should be conducted in the airplane.

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Requests for device approval should be made in accordance with FAA procedures.

Flight Training Devices and Flight Simulator characteristics must comply with applicable 14 CFR. Credit for training, checking and currency in an approved Flight Training Device (FTD) or Simulator is allowed in accordance with the Simulator Task Credit given in accordance with Airline Transport Pilot and Aircraft Type Rating Practical Test Standards or current guidance in FAA Order 8900.10 FSIMS, as applicable, except where this report is more restrictive.

## **12. APPLICATION OF FSB REPORT**

DHC-6-300 increased gross weight operations are subject to the provisions of this report. This report becomes effective when given final approval by the FAA.

All training, checking and currency for the DHC-6-300 increased gross weight aircraft must be conducted in accordance with all provisions of this report. All FAA Approved Training Programs must incorporate the latest FAA Approved AFM Procedures, AFM compliant checklist, manufacturer's recommendations for training maneuvers and all provisions of this report.

## **13. ALTERNATE MEANS OF COMPLIANCE**

Alternate means of compliance to the requirements of this report must be approved by the FSB. If alternate compliance is sought, operators must show that the proposed alternate means provides an equivalent level of safety to the provisions of AC 120-53A and this FSB report. Analysis, demonstrations, proof of concept testing, differences documentation or other evidence may be required.

### 13.1 Equivalent Safety

Significant restrictions may apply in the event alternate compliance is sought, and the reporting requirements may be increased to ensure equivalent safety. FAA will generally not consider relief through alternate compliance unless sufficient lead time has been planned by an operator to allow for any necessary testing and evaluation.

### 13.2 Interim Programs

In the event of clearly unforeseen circumstances in which it is not possible for an operator to comply with provisions of this report, the operator may seek an interim program approval rather than a permanent alternate compliance method. Financial arrangements, scheduling adjustments and other such reasons are not considered "unforeseen circumstances" for the purposes of this provision. Interim program approval must be approved by the operators Principal Operations Inspector (POI) and coordinated with the FSB Chairman.

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## **14. MISCELLANEOUS RECOMMENDATION**

Due to the level of aircraft systems integration in the DHC-6-300, the FSB recommends strict adherence to the manufacturer's latest Normal, Abnormal and Emergency Pilot Checklists, FAA Approved Aircraft Flight Manual and Supplemental procedures and Pilot Operating Handbook profiles to prevent unintended negative effects from integration.

# APPENDICES

Appendix 1 – MDR Table (Reserved)

Appendix 2 – ODR Table (Reserved)

Appendix 3 – Sample Training Program (Reserved)

Appendix 4 – Compliance Checklist (Reserved)