



Dryden Flight Research Center  
Edwards, California 93523

**DOP-O-023, Revision F**  
**Expires November 24, 2013**

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# **Dryden Organizational Procedure**

## **Code O**

### **Aircraft Weight and Balance (W&B)**

Electronically approved by  
Director, Flight Operations Directorate

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## 1.0 PURPOSE OF DOCUMENT

This document formalizes current weight and balance practices.

## 2.0 PROCEDURE SCOPE & APPLICABILITY

**Scope:** This procedure covers current weight and balance practices.

**Applicability:** This procedure applies to all Code O personnel responsible for aircraft weight and balance.

## 3.0 PROCEDURE OBJECTIVES, METRICS, & TREND ANALYSIS

**Objective:** Manage aircraft weight and balance to ensure safety of flight

**Metric 1:** All aircraft weighed and balanced under conditions listed in Table 3.1

**Metric 2:** All W&B Form B (DD Form 365-2) data must reflect most recent weight and balance data obtained from AFFTC Weighing Facility or Portable Electronic Scales. All W&B Chart C (DD Form 365-3) (or equivalent) data must reflect current configuration of aircraft

**Metric 3:** All W&B Form F (or equivalent) data must reflect current CG of aircraft for flight

<b>Table 3.1</b>	
Operational DFRC and DAOF aircraft will be weighed and balanced under any of the following conditions:	
<b>1. Time compliance requirement:</b>	
Aircraft Category	Weighing Interval
<u>Research Aircraft:</u>	Annually*
Fundamentally experimental in the design of one or more of its systems, intended for aerospace technology research (e.g. F-18 SRA, F-15B, etc.)	
<u>Platform Aircraft:</u>	Per Tech Order or following major instrument upload**
A production type aircraft with non-experimental flight systems, which serves as a platform for earth science or other scientific sensors and data gathering equipment (e.g. ER-2, DC-8, Global Hawk)	
<u>Support Aircraft:</u>	3 years for all types**
Production type aircraft which "support" research missions, such as chase support, pilot proficiency flights, etc. (e.g. T-34, F-18, T-38)	
<u>Mission Management Aircraft:</u>	3 years**
Production type aircraft, FAA certified for passenger transport (e.g. KingAir)	
<b>2. Major repair or modification (determined by Ops Engineer)</b>	
<b>3. Unsatisfactory flight characteristics</b>	
<b>4. Calculated weight and balance suspect</b>	

**Trend Analysis:** Are individual aircraft adhering to the W&B procedure? If not, what are the reasons and who justified? Group Leads within OE will monitor W&B procedure compliance and will act accordingly should there be a negative trend (e.g. unnecessary deferrals).

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## 4.0 WAIVER AUTHORITY

Proper W&B is necessary for safety of flight and the need to complete W&B requirements is of great importance. However, under special circumstances, a waiver from this DOP may be allowed:

General waiver (e.g., Predator W&B methods): Requires Code O Director approval accomplished through a signed Memorandum and assigned a tracking number.

Time compliance deferral:

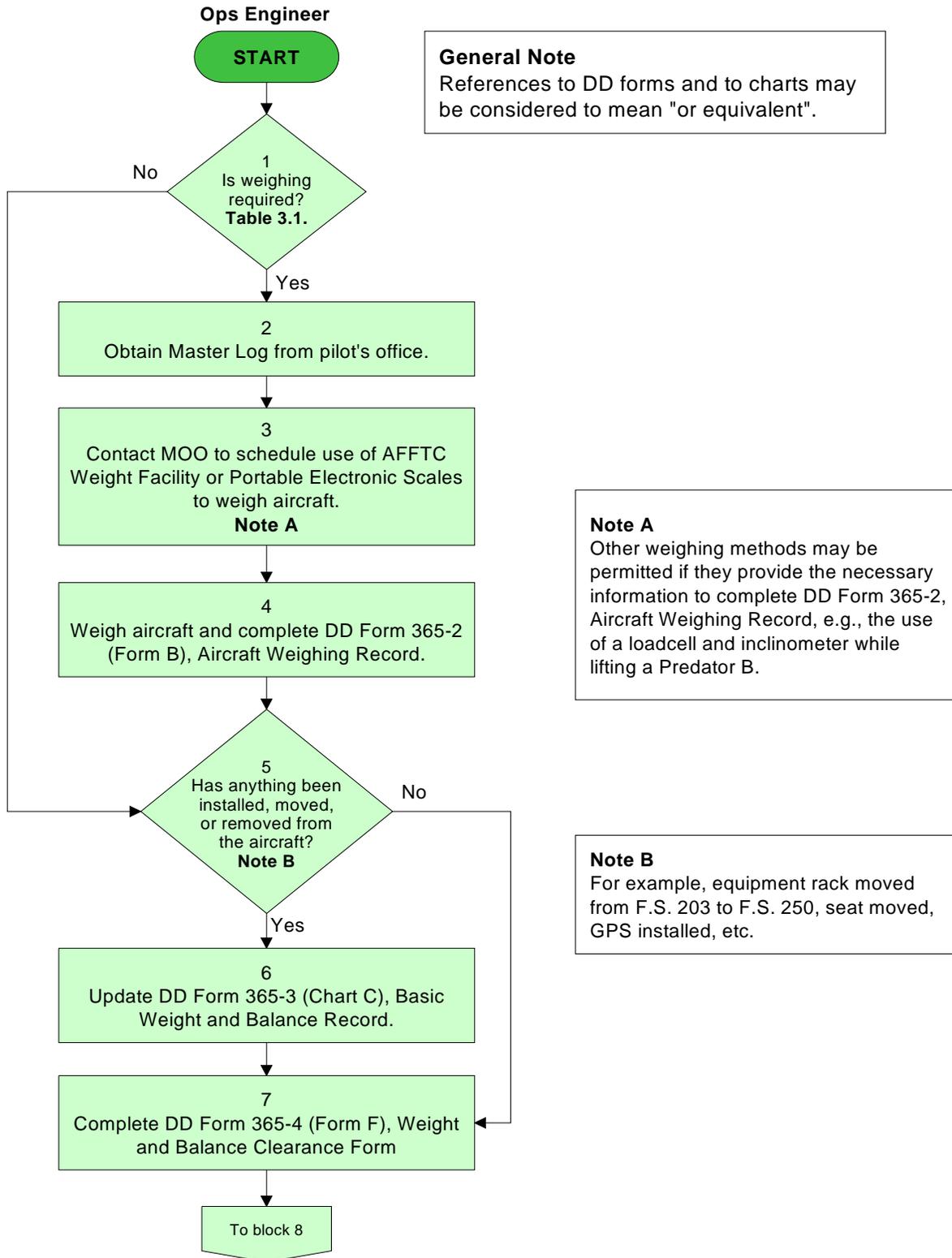
\* Research Aircraft time compliance requirement may be deferred by the Operations Engineer for good reason, up to 3 months. This will be accomplished through a Memorandum for Record with an attached tracking number assigned by the Operations Directorate Secretary. Any further deferment requires OE Branch Chief (or higher) approval. This action will be accomplished through a Memorandum that includes an approval signature block and tracking number.

\*\* Platform Aircraft, Support Aircraft, and Mission Management Aircraft time compliance requirement may be deferred with OG divisional level or Code O directorate level approval. This action will be accomplished through a Memorandum that includes an approval signature block and tracking number.

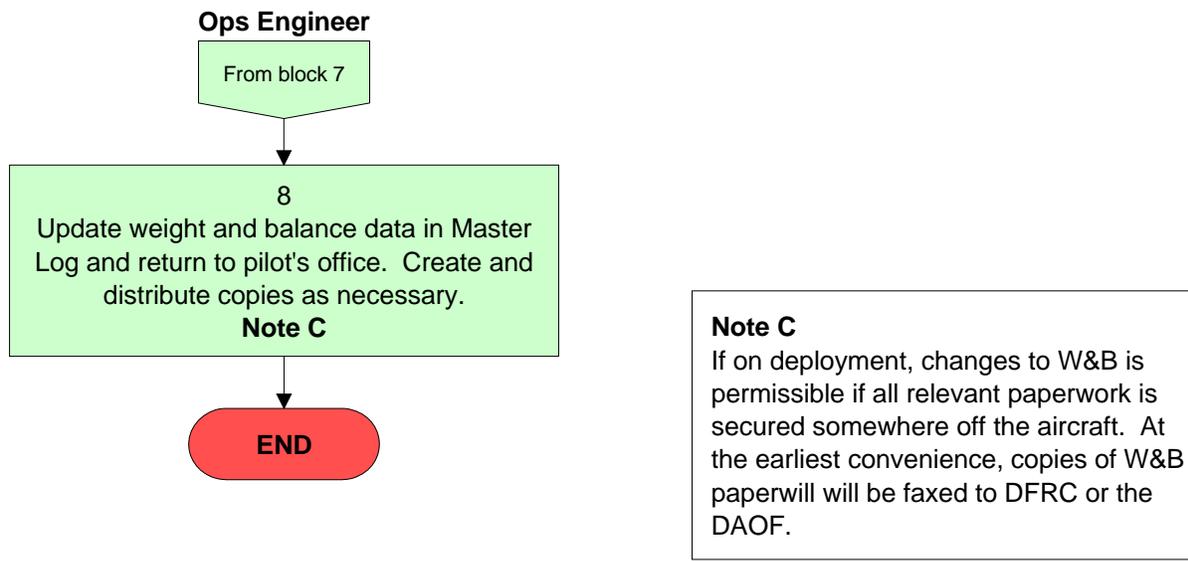
Regarding deployments: No waiver is necessary. As long as the responsible Ops Engineer assures that the W&B records are kept somewhere off the aircraft and copies are faxed to the DAOF or DFRC at earliest convenience, the Ops Engineer will be in compliance with this DOP.

Copies of Deferral/General Waiver Memorandums (example in Attachment B) will be kept in the W&B Master Log and with the responsible Ops Engineer. In addition, form [D-WK 605-7](#), ODT 5 – Aircraft Maintenance Discrepancy/Work Record, will refer to W&B time compliance deferrals and will include the memorandum tracking number (example in Attachment A).

## 5.0 FLOWCHART



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## 6.0 MANAGEMENT RECORDS & RECORDS RETENTION

A master copy of all aircraft W&B records

- 1) Chart A, Basic Weight Checklist Record
- 2) Chart C (DD Form 365-3), Basic Weight & Balance Record (or equivalent)
- 3) Form B (DD Form 365-2), Aircraft Weighing Record (or equivalent)
- 4) Form F (DD Form 365-4), Weight & Balance Clearance Form (or equivalent)

are to be kept in the pilot's office at either DFRC or DAOF, dependant upon aircraft base location. A copy of the Weight And Balance Clearance Form (Form F) for each normal (nontest) configuration likely to be flown will be maintained with the corresponding flight manual in the pilots office for each support aircraft that can be configured with external stores.

### Records Retention:

Chart A, Basic Weight Checklist Record – Retained until transfer of aircraft or superseded.

Chart C (DD Form 365-3), Basic Weight & Balance Record (or equivalent) – Retained until transfer of aircraft.

Form B (DD Form 365-2), Aircraft Weighing Record (or equivalent) – Retained until transfer of aircraft.

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Form F (DD Form 365-4), Weight & Balance Clearance Form (or equivalent) – Retain most current form and discard superseded versions.

Deferral Memorandum – Retain until aircraft weighing is completed.

Records are preserved, maintained, and disposed of in accordance with NPR 1441.1, NASA Records Retention Schedules, and [DCP-F-603](#), Records Management.

## 7.0 RELEVANT DOCUMENTS

### 7.1 Authority Documents

NPR 7900.3B / 2.6.2.5 Aircraft Operations Management

### 7.2 Reference Documents

DHB-O-001 Operations Engineer's Handbook

QAP-Q-1.0 Quality Assurance Plan (QAP)

TO 1-1B-50 Basic Technical Order for USAF Aircraft, Weight and Balance

### 7.3 Forms

DD Form 365-2 (Form B) Aircraft Weighing Record (or equivalent)

Chart A Basic Weight Checklist Record

DD Form 365-3 (Chart C) Basic Weight & Balance Record (or equivalent)

DD Form 365-4 (Form F) Weight and Balance Clearance Form (or equivalent)

[D-WK 605-7](#) ODT 5 – Aircraft Maintenance Discrepancy / Work Record

## 8.0 ACRONYMS & DEFINITIONS

### 8.1 Acronyms

CG Center of Gravity

DAOF Dryden Aircraft Operations Facility

FAA Federal Aviation Administration

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MOO	Maintenance Operations Office
O	Operations
OE	Operations Engineering
OG	Chief of Maintenance
W&B	Weight and Balance

## 8.2 Definitions

Master Log / Master Record	The definitive record of W&B per aircraft is known as the Master Log or Master Record of W&B. Once an aircraft is no longer under the control of NASA DFRC or DAOF, this will be known as a transfer of aircraft.
“Or equivalent”	A spreadsheet or other medium used to present the same information as would be found in the original form.

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## Attachment B – Sample Deferral/Deviation Memorandum

OE/07/08

January 28, 2008

MEMORANDUM FOR RECORD

SUBJECT: C20-A/G-III, NASA 83-0502 Weight & Balance Deferment

In accordance with DOP-O-023, Aircraft Weight & Balance (W&B), the annual W&B requirement of NASA 83-0502 will be deferred past the due date of February 2, 2008 for a period not to exceed three (3) months. The deferment is in the best interest of the G-III program due to an impending structural modification to the aircraft. NASA 83-0502 will require weighing after the modification and will satisfy the annual W&B requirement at that time.

Michael D. Holtz  
Operations Engineer  
G-III/NASA 83-0502

cc:  
OE/T. Ginn  
OM/D. Denman, G. Carlson, Crew Chief

**Document History Log**

This page is for informational purposes and does not have to be retained with the document.

<b>Status Change</b>	<b>Document Revision</b>	<b>Effective Date</b>	<b>Page</b>	<b>Description of Change</b>
Baseline		03-29-1999		
Revision	A	04-12-99	1	<b>Change</b> "Tow aircraft to Edwards Weight and Balance Facility" in block 1 of Crew Chief
Revision	B	05-11-99	1	<b>Add</b> Blocks 1 and 2 of Operations Engineer <b>Move</b> block "Update Chart C – Basic Weight and Balance Record" above block "Complete Weight and Balance Form F" of Operations Engineer
Revision	C	06-14-99	1	Major changes to chart
Revision	D	11-28-00	1	<b>Change</b> "Operations Engineer" responsibilities and Not 1. <b>Add</b> Note 2 and Chart "A"
Revision	E	04-25-03	1	Traceability change – change location of records and log. Ref. Pg. 1, Block 2 – Change to read: Obtain Form B Weighing record from the pilot's office.  Ref. Pg. 1, Block 9 – Change to read: Update weight and balance data master log and return file to the pilots' office.
Revision	F	11-24-08	All	Major changes to entire document

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