

Attachment 21

to Operational Factors / Human Performance Group Chairman's Factual Report

DCA03MA022



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

Memorandum

Subject: **INFORMATION:** NTSB Accident/Incident
Request 03-017; AAI-220 route slip dated
3/3/03

Date: **MAR 21 2003**

From: Director, Flight Standards Service, AFS-1

Reply to: Wanda Moore
Attn. of: 202/267-7220
FAX: 202/267-7636

To: Director of Accident Investigation, AAI-1
ATTN: Cathy Taylor, AAI-220

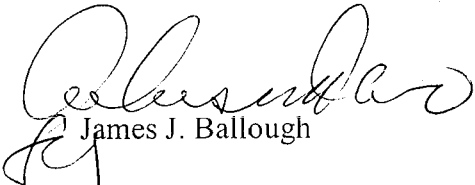
The NTSB requested information regarding the Air Midwest BE-1900 accident at CLT. Specifically, they requested a copy of the report/results of the Average Weight Validation Program.

This accident raised concerns related to aircraft loading and average weights used in Weight and Balance Control Programs. As a result, the FAA issued Notice 8400.40, dated 1/24/03, "Weight and Balance Control Programs for 10 to 19 Seat Airplanes Operated Under 14 CFR 121." This notice requested all operators of 10-19 passenger seat airplanes operated in 14CFR121 operations to conduct a survey to validate the average weights contained in their Weight and Balance Control Program. The survey was conducted over a three consecutive day period that included a Sunday, Monday, and Tuesday at 30% of the operator's stations. The three specified days represent two heavier traveled days and one lighter traveled day. Of the stations sampled, 15% of the flights were surveyed, (but not less than one flight). Any increase in average passenger, carry-on, or checked baggage weights derived from this survey was incorporated into the carriers Weight and Balance Control Program or the carrier could either elect to use actual weights or conduct a comprehensive survey, as outlined in AC120-27C, Aircraft Weight and Balance Control, effective November 1995, to determine new average weights.

The attached table represents the results from the average weight survey for carriers affected by N8400.40. Also attached is a copy of Notice 8400.40, for your information.

Currently, the FAA is in the process of establishing an Aircraft Weight and Balance Control Program Industry Advisory Committee (ABCIAC) to conduct a comprehensive review and rewrite of Advisory Circular (AC) 120-27C, and other related guidance. The committee will provide recommendations to the FAA to assist the agency in establishing an advisory framework that will enhance safety in the aviation industry.

If we can be of further assistance, please let us know.



James J. Ballough

Attachments

NOTICEU.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**N 8400.40**

1/27/03

Cancellation
Date: 1/27/04**SUBJ: WEIGHT AND BALANCE CONTROL PROGRAMS FOR 10 TO 19 SEAT
AIRPLANES OPERATED UNDER 14 CFR 121****1. PURPOSE.**

- To validate Weight and Balance Control Programs of air carriers operating airplanes having 10 to 19 passenger seats under Title 14 of the Code of Federal Regulations (14 CFR) part 121
- To determine the condition of cargo restraint systems (e.g., tie down rings, locking devices, cargo nets)

2. BACKGROUND. On January 8, 2003, a regional commuter airplane experienced a fatal accident on departure. Although the National Transportation Safety Board has not determined probable cause, this accident has raised concerns related to aircraft loading and average weights used in Weight and Balance Control Programs. All 14 CFR part 121 operators of 10 to 19 passenger seat airplanes must validate their average weights contained in their Weight and Balance Control Program. The validation should include special emphasis on average passenger weights, carry-on baggage weights, and checked baggage weights.

3. DISTRIBUTION. This notice is distributed electronically to all regional Flight Standards divisions and district offices. A printed copy will be distributed to the branch level in the regional Flight Standards divisions, Flight Standards District Offices, the division level in the Flight Standards Service in Washington headquarters, and the Regulatory Standards Division at the Mike Monroney Aeronautical Center. This information is also available on the FAA's Web site at the following URL:
<http://www.faa.gov/avr/afs/notices/8400-40.htm>.

4. APPLICABILITY. This notice applies to all principal operations inspectors (POI) and principal maintenance inspectors (PMI) assigned to part 121 air carriers operating 10 to 19 passenger seat aircraft.

5. ACTION.

a. Principal inspectors shall provide the information in this notice to their respective operators by providing them a copy of this notice or referring them to the URL indicated above.

b. Principal inspectors shall have their operators, within 30 days from the publication date of this notice, validate their existing approved Weight and Balance Control Programs contained in operation specifications paragraph E096 under the provisions and guidance contained herein. A new sampling to validate average weights, under certificate-holding district office (CHDO) oversight, shall be accomplished to include passenger weights, carry-on baggage weights, and checked baggage weights.

c. To maintain confidence in the average weights contained in the Weight and Balance Control Program, operators of 10 to 19 passenger seat aircraft must sample passenger weights, carry-on baggage weights, and checked baggage weights over a three consecutive day period that consists of a Sunday, Monday, and Tuesday. The validations will be accomplished by sampling 15% of the operator's flights, distributed evenly throughout the day, from 30% of their city pairs (but not fewer than 1 city pair), distributed equally across its geographic route structure.

To conduct this survey:

- Use certified scales, and
- Weigh all passengers and carry-on and checked bags.
- The passenger weights may be obtained by weighing each passenger or asking each passenger their weight and adding 10 pounds.

d. If sample weights are greater than the weights contained in the approved Weight and Balance Control Program, the operator must use the new average weights. If the operator feels the increased average weight is inappropriate, they may conduct a new validation survey using the criteria prescribed in advisory circular (AC) 120-27C, Aircraft Weight and Balance Control. An operator can only reduce its previously approved average weights by conducting a complete survey, as outlined in AC 120-27C. At any time, air carriers may elect to use actual weights.

e. Under the principal inspectors' direction, the FAA will inspect the aircraft cargo compartment and cargo installed restraint systems. The inspection will determine that:

- Baggage and/or cargo is carried in an approved cargo rack, bin, or compartment;
- Baggage and/or cargo is secured by an approved means as required (e.g. tie down rings, locking devices, cargo nets, etc.);
- Baggage and/or cargo compartments and other loading stations are properly marked.

f. The operator's carry-on baggage procedures must be designed to ensure that the approved Weight and Balance Control Program is not compromised.

6. REPORTING. A report outlining the results of the average weight validation and the cargo compartment and cargo restraint system inspection shall be entered into the Program Tracking and Reporting Subsystem (PTRS) with a code of 1088 (operations) and 3639 (maintenance) no later than 45 days from the publication date of this notice. This report can be attached to the PTRS entry in a Microsoft Word or Excel format or entered directly into the comments section of the PTRS entry. The principal inspectors shall enter into the national use field "N8400WT" for the weight sampling. The principal inspectors shall enter "N8400CC" for the cargo compartment inspection of PTRS so discrepancies can be recorded. The report should list the number of passengers, the number of carry-on and checked bags sampled, and the average weight of each. Indicate what aircraft and city pairs were sampled in the validation process. Document any discrepancies that were discovered and if any changes were made to the carrier's Weight and Balance Program.

7. GUIDANCE FOR VALIDATING WEIGHT AND BALANCE CONTROL PROGRAMS. For guidance, refer to the following:

- AC 120-27C
- FAA-H-8083-1, Aircraft Weight and Balance Handbook
- Order 8300.10, Airworthiness Operations Inspector's Handbook
- Order 8400.10, Air Transportation Operations Inspector's Handbook
- FAA Handbook Bulletin HBAW 95-14, Adherence to Advisory Circular 120-27C
- FAA Handbook Bulletin HBAT 95-15, Adherence to Advisory Circular 120-27C

8. DISPOSITION. This notice will expire one year from the signature date. It will not be incorporated into Order 8400.10 or 8300.10. Questions concerning weight and balance sampling should be directed to Dennis Pratte, AFS-220, Air Transportation Division, at (202) 267-5488. Questions concerning the cargo compartment inspections should be directed to Emilio Estrada, AFS-330, Aircraft Maintenance Division, at (202) 267-5571.

Original signed by Louis C. Cusimano for

James J. Ballough
Director, Flight Standards Service

FAA Notice 8400.40 Survey Results

<i>Air Carrier</i>	<i>Average Adult Wt. (lbs.)</i>	<i>Sample Size</i>	<i>Average Carry-On Wt. (lbs.)</i>	<i>Sample Size</i>	<i>Average Checked Bag Wt. (lbs)</i>	<i>Sample Size</i>
A	200.00	3018	20.00	1538	30	2510
B	177.86	148	*	*	24	211
C	192.60	326	11.03	297	29.88	485
D	184.00	66	9.00	30	24.00	120
E	192.00	739	15.80	488	25.50	828
F	193.60	106	13.90	90	34.00	171
G	164.00	16	5	86	27.29	7
H	193.57	106	13.93	90	33.98	171
I	199.10	132	16.90	108	24.70	125
♦J	165.00	179	*	*	*	*
K	196.00	365	7	222	*	*
L	190.00	216	7.8	215	24.80	266
M	189.47	77	14.45	59.00	25.54	64
N	191.18	229	18.26	111	29.24	186
O	187.90	396	14.70	485	30.80	378

- Carrier uses actual weights in this category.
- ♦ Carrier did not properly conduct survey and results not reflected in survey results

<i>Survey Categories</i>	<i>Survey Average Weight (lbs)</i>	<i>Increase/(Decrease)</i>
Average Adult Passenger Weight	195.63	+20.63
Average Carry-On Bag Weight	15.72	+5.72
Average Checked Bag Weight	28.81	+8.81