NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, D.C. 20594

March 27, 2003

GROUP CHAIRMAN'S FACTUAL REPORT

OPERATIONAL FACTORS GROUP

DCA03MA022

TABLE OF CONTENTS

A. ACCIDENT

Operator:	Air Midwest, Inc.
Location:	Charlotte/Douglas International Airport (CLT) Charlotte, North Carolina
Date:	January 8, 2003
Time:	0848 Eastern Standard Time[1] (est)
Airplane:	Beech 1900D, N233YV

B. OPERATIONAL FACTORS / HUMAN PERFORMANCE GROUP

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Brian C. Richardson
Former Flight Standards Manager,
Air Midwest, Inc.
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Charlotte, North Carolina

[1] All times are Eastern Standard Time based on a 24-hour clock, unless otherwise noted. Actual time of accident is approximate.

C. SUMMARY

On January 8, 2003, at about 0848 Eastern Standard Time, Air Midwest flight 5481 (d.b.a. US Airways Express), a Beech 1900D, N233YV, crashed shortly after takeoff from Charlotte-Douglas International Airport (CLT), Charlotte, North Carolina after a distress call was made by the Captain. The flight was a scheduled passenger flight to Greenville-Spartanburg, South Carolina. The 2 crewmembers and 19 passengers onboard were killed and one person on the ground received minor injuries. The airplane was destroyed due to impact forces and a post crash fire.

D. DETAILS OF THE INVESTIGATION

The Operational Factors / Human Performance Group convened at the Charlotte/Douglas International Airport, Charlotte, North Carolina, on January 8, 2003, to begin the field phase of the accident investigation. On January 8, 2003, three members of Operational Factors / Human Performance Group interviewed a US Airways mechanic who was an eyewitness to the accident and one of the first responders to the accident site. Further interviews were conducted with the two gate agents who worked the accident flight, the gate supervisor, and the three ramp agents who worked the accident flight.

The Operational Factors / Human Performance Group interviewed eyewitnesses to the accident, pilots that had flown with the accident flight crew, pilots that had flown the accident airplane immediately preceding the accident flight, in addition to other recent flights. Further interviews were conducted with ground handling training and management personnel.

On January 11, 2003, the Operational Factors / Human Performance Group observed ramp operations and examined a Beech 1900D at CLT.

Manuals and documents were obtained from Air Midwest, Inc., and the Federal Aviation Administration (FAA).

The Operational Factors / Human Performance Group concluded the field phase of the accident investigation on January 15, 2003.

On February 20, 2003, the Operational Factors / Human Performance Group interviewed the Principal Operations Inspector assigned to the Air Midwest operating certificate.

1.0 HISTORY OF FLIGHT

According to company records, on the day before the accident, January 7, 2003, the accident flight crew flew the accident airplane on 6 flight legs for a total flight time of 6

hours. They were scheduled to arrive back in CLT at 1910 at the end of their trip sequence but the actual time of arrival at CLT was 2045. Another flight crew met the arriving flight and flew it from CLT to Lynchburg Regional Airport/Preston Glenn Field (LYH), Lynchburg, Virginia. The next morning, January 8, 2003, that same flight crew flew the accident airplane back to CLT, arriving at 0715. According to interviews conducted by the Operational Factors/Human Performance Group, neither the captain nor the first officer on these 2 flight legs noticed anything unusual about the handling of the accident airplane.[2]

According to one of the ramp agents working the flight, they were originally told that the maximum number of bags allowed on the flight was 32. They had about 22 or so checked bags and once they added the carry-on bags to the baggage compartment, the bag count equaled 31. They were under the impression that the bag count was under restrictions. The ramp agent also stated that two of the 31 bags were heavy, with an estimated weight of at least over 70-80 pounds. It required two ramp agents to load them into the bin. The other bags seemed normal. The ramp agent told the captain that he wanted her to know that some of the bags were heavy; not marked heavy, but they were heavy. She said fine, and told him that they had a child on board which would allow the excess weight to go up a bit.

The ramp agent stated that they were later told that the restrictions for the flight had been reduced to 26 bags. He said that he knew there were too many bags on the airplane; therefore, he asked the captain if she wanted to do the calculations for fuel, passengers, etc., and to tell him if he needed to remove any bags because of excess weight. About 10 minutes later, he again went to the window of cockpit and asked if any bags needed to come off the airplane. The captain told him that the number of bags loaded was fine. He estimated that the compartment was about 98 percent full by volume. They shut the door and started engine number 1. The airplane then sat there for a few minutes before starting to taxi.

The ramp agent stated that the airplane was “sitting up a little bit, nose high, tail down,” and he noticed that the nose gear “scissors” was all the way extended. He had seen this before. When the airplane pulled away, he saw the nose come down; the nose of the airplane was sitting down a lot more than it was when it was just sitting there after loading. Another ramp agent working the flight stated that he thought the airplane looked a little back-heavy, too, but after the engines were started, the nose did come down a bit.

According to company records, the accident flight departed the gate at CLT on time at 0830 and taxied to runway 18R. The accident occurred about 18 minutes later at 0848 on takeoff from runway 18R.

The accident occurred on the first flight of the flight crew’s scheduled one-day flight sequence, which consisted of 3 flight legs. The flight crew was scheduled to fly from CLT to the Greenville-Spartanburg International Airport (GSP), Greer, South Carolina, and then continue on to the Raleigh-Durham International Airport (RDU), Raleigh/Durham, North Carolina, before returning to CLT.

[2] See Attachments 1-50 through 1-53 and 1-56 through 1-61 for further details.

According to several pilot eyewitnesses who observed the accident airplane taxiing to the takeoff runway, the airplane appeared to be heavily loaded and sitting tail-low. One pilot stated that the nose strut was "extremely" extended. He remembered that the airplane "bounced heavily" as it taxied.[3] An American Airlines MD-80 first officer who had 2,000 hours command time in the Beech 1900, stated that her impression was that the accident airplane was "heavily, heavily, loaded." It was "tail-low and nose-high."[4] Another pilot stated that before takeoff the accident airplane was "sitting tail-down." The main landing gear struts were compressed, the tires were compressed, and the nose strut was almost fully extended.[5]

When the accident airplane took off, one pilot eyewitness stated that it consistently increased nose-high pitch during the climb out. When he first saw the airplane it was approximately 10 to 15 degrees nose-high and it smoothly increased in pitch, "like an air show." The maximum pitch increased to something less than vertical to about a 75-degree body angle. At the highest altitude of about 900 to 1,000 feet, the airplane did a wing-over to the left and appeared to turn back to the north as it descended in a near vertical, extreme, nose-down attitude. About halfway to the ground, it rolled to the right and the nose lifted to almost level flight. The airplane appeared to rollover again to the right and it dove into the ground. The crash and the fire were almost instantaneous.[6]

Another pilot eyewitness stated that just before the airplane hit the ground, the nose began to come up and the airplane "pancaked" into the ground in an almost flat, wings-level attitude. About the time the airplane was at its highest altitude, he heard a woman's voice say something on the radio, and then he heard her say, "emergency."[7]

[3] See Attachment 1-110 for further details.
[4] See Attachment 1-118 for further details.
[5] See Attachment 1-114 for further details.
[6] See Attachments 1-110 and 1-111 for further details.
[7] See Attachments 1-112 and 1-113 for further details.

2.0 FLIGHT CREW INFORMATION

2.0.1. The Captain, Katie I. Leslie

Date of hire with Air Midwest, Inc.: March 13, 2000

Airman Certificates / Ratings and Limitations:
- Airline Transport Pilot (issued 03/06/01)
  - Airplane Multiengine Land
  - BE-1900
- Commercial Privileges
  - Airplane Single Engine Land
  - BE-1900 Second-in-Command Required

- Flight Instructor (issued 08/31/99)
  - Airplane Single and Multiengine
  - Instrument Airplane
  - Valid only when accompanied by pilot certificate. Expires: 08/31/01

Medical Certificate:
- First Class (issued 11/19/02)
  - Limitations: None

A review of FAA records indicated that on February 6, 1997, she was issued a notice of disapproval of application for a Private Pilot Certificate. She subsequently passed the test and was issued a Temporary Airman Certificate on the same date.

A review of FAA records indicated that on April 13, 1999, she was issued a notice of disapproval of application for a Flight Instructor–Instrument Airplane Certificate. She subsequently passed the test and was issued a Temporary Airman Certificate on the same date.

A review of FAA records indicated that she had no record of airplane accident, incident, or enforcement actions.

Flight experience according to company records:

FLIGHT TIME	HOURS
Total Air Midwest, Inc.	2,713
Last 24 hours	6
Last 7 Days	12
Last 30 days	32
Last 90 days	134
Last 12 months	756

Captain Leslie's resume dated January 27, 2000, listed flight time as follows:

- Total: 925 hours
- PIC: 625 hours
- Multiengine: 101 hours

Training and checks:

TRAINING / CHECKS	DATE
Initial Beech 1900 type rating	03/06/01
Last Beech 1900 proficiency check	08/20/02
Last Line Check	11/26/02
Last recurrent ground school	09/18/02

2.0.2. The First Officer, Jonathan J. Gibbs

Date of hire with Air Midwest, Inc.: May 7, 2001

Airman Certificate / Ratings and Limitations:
Commercial Pilot (issued 11/12/00)
Airplane Single and Multiengine Land
Instrument Airplane

Medical Certificate:
First Class (issued 12/10/02)
Limitations: None

A review of the FAA records indicated that he had no history of failures or re-tests for FAA pilot certificates and ratings, and no record of airplane accident, incident, or enforcement actions.

Flight experience according to company records:

FLIGHT TIME	HOURS
Total Air Midwest Beech 1900	713
Last 24 hours	6
Last 7 Days	15
Last 30 days	59
Last 90 days	210
Last 12 months	576

His application for employment dated May 7, 2001, listed total flight time as 390 hours.

Training and checks:

TRAINING / CHECKS	DATE
Initial Beech 1900 proficiency check	05/04/02
Last Beech 1900 proficiency check	05/04/02
Last Line Check	08/20/01

3.0 AIRPLANE INFORMATION

3.0.1 Weight And Balance / Speeds

BEECHCRAFT 1900D LOAD MANIFEST WEIGHTS[8]	
	WEIGHT (Pounds)
Operating Weight	10,673*
Passengers (19)	3,325*
Coat Closet	10*
Cargo Fwd (AFT-1)	775*
Cargo Aft (AFT-2)	45*
Zero Fuel Weight	14,818*
Maximum Zero Fuel Weight	15,165
Fuel at Takeoff	2,200*
Gross Takeoff Weight	17,018*
Maximum Gross Takeoff Weight	17,120
Fuel Requested	2,400[9]
Maximum Landing Weight	16,765

* Weight shown on the Beechcraft 1900D Load Manifest for the accident flight.

BEECHCRAFT 1900D LOAD MANIFEST CENTER OF GRAVITY (C.G.)	
C.G.	**INDEX SCALE**
Takeoff	81
Limits (Takeoff)	23 to 85

SPEEDS (Knots)	
Takeoff (V_1, V_R, V_2)**	105, 105, 112

**Assumed flaps setting: 17 degrees.

[8] See Attachment 5-1.
[9] See Attachment 17-1.

3.0.2 Weight and Balance Procedures

According to the Air Midwest, Inc., Flight Operations Procedures Manual (FOPM), the following applies to all methods of weight and balance control used by Air Midwest, Inc.:[10]

Air Midwest Is authorized to use average passenger weights in lieu of actual passenger weights to compute passenger loads over any route, except in those cases where nonstandard weight passenger groups are carried. An average weight of 170 pounds (summer) may be used for adult passengers during the calendar period of May 1 through Oct. 31. An average weight of 175 pounds (winter) may be used for each adult passenger during the calendar period from November 1 through April 30. An average of 80 pounds may be used for children between the ages of 2 and 12. Two children are counted as one passenger only for entering the Passenger Index Table and determining the index. When determining the passenger index, if there is an odd number (1, 3, 5, etc.) of children in a section, the last child is ignored if seated in the forward section and counted as an adult passenger if seated in the aft section. Children above 12 years of age are classified as adults for the purpose of weight and balance computations. Children less than 2 years old are considered "babes in arms."

> **NOTE:** These passenger weights include minor items normally carried by a passenger and include 10 pounds per passenger for carry-on luggage. These minor items may be stowed under the seats if they are the size and shape that fit under the seat, or may be stowed in the coat closet.

The articles stowed in the coat closet will be added as weight at 10 pounds estimated weight or actual weight as deemed appropriate by the PIC. Carry-on luggage not fitting in the seat or in the coat closet will be put in the aft cargo bin and considered as 25 pounds for weight and balance purposes. Carry-on baggage/cargo that must be secured in a passenger seat, (musical instruments, television cameras, etc.) shall be secured forward of the most forward seated passenger. These items may be viewed as a child for the purpose of calculating index units.

According to the FOPM, the following average passenger baggage weights may be used in lieu of actual weights:

1. For each piece of checked baggage, an average of not less than 25 pounds, and
2. For each military duffle, average weight of 50 pounds.
3. Carry-on baggage is assumed at 10 pounds per item.

> **NOTE:** Carry-on baggage weight is included in the average passenger weights shown above.

[10] See Attachment 14 for further information.

According to Tina Weaver, Director US Airways Express Training,[11] ramp agents do not account for weights on the OF-11E. All they do on the worksheet is count the number of bags. The flight crew is responsible for calculating the weight and balance of the aircraft. The ramp agents count the checked bags, carry-on bags, cargo, mail, live animals, COMAT, and anything like that. The cargo information includes the number of pieces and the weight, but they only count checked and carry-on bags, and passengers.

If a bag weighs 70-100 pounds, that is called an overweight bag. According to Ms. Weaver, It is the ticket agent's responsibility, when checking the bag at the ticket counter, to put a "heavy bag" tag on a heavy bag. It is not a requirement that they put the weight of the bag on the tag. Bag weight does not get recorded anywhere at check-in. Passengers are charged an additional fee for a heavy bag. If the bag weighs over 100 pounds, it must go as air freight, air cargo. The ticket agent would advise them that it would have to go air freight then they put an air freight tag on. It is loaded onto the airplane as one piece, along with its weight. The air waybill contains the weight of the piece. Anything that is sent as mail, freight, or COMAT is listed with the number of pieces and the weight of each piece. Some stations have air freight offices that create the waybill and at other stations, it is handled at the ticket counter. The waybill is affixed to the box or luggage. For example, it is included on the worksheet as 1 piece weighing 120 pounds. The ramp agent is responsible for listing it on the worksheet.

Bags that weigh between 25 and 70 pounds are just counted as 1 bag. They do not weigh bags on the ramp at all. It is a standard bag weight program. With a heavy bag, the agent must indicate in the remarks section of the OF-11E that there is a heavy bag on board. They are also responsible for indicating that a footlocker or duffle bag is on board. They only note those bags that are tagged; otherwise, they rely on the standard weight program.

Ramp agents are told during training that the OF-11E, the load report, is a document to account for all passengers and bags loaded on the airplane. There are four sections on the OF-11E: Passenger count, bag count, cargo, and crew-required information (live animals, hazmat). Checked bags are listed by bin and location. Footlockers and duffle bags are counted as 1 piece and notated in the remarks section. Ramp personnel are trained to identify heavy bags only through "heavy bag" tags. The agent is only required to put in the remarks section, "heavy bag" for those bags with a "heavy bag" tag attached. If a bag is heavy but does not have a "heavy bag" tag, there is no requirement to put it in the remarks section. To her knowledge, there is no procedure for verbally telling crew about heavy bags without noting it in remarks section. Upon completion of the form, one copy is to be given to crew.

Ramp agents are trained that if corrections are made to the OF-11E, the crew must be notified of the change. For example, a late-arriving bag shows up at the airplane after the form had been completed. Even if the form had been given to the crew, a change in the number of passengers or bags must be added to the form in the remarks section, and initialed by the agent. The ramp agent tells the crew about the change and gives the crew

[11] See Attachment 1-91 for further information.

the paperwork to fill out. The crew then hands the paper back to the agent. It is the crew's responsibility to make sure both forms are okay.

3.0.3 Beech 1900D Loading Schedule for 19-Seat Configuration

According to the FOPM, the following method to control weight and balance uses index units to establish the actual c.g. [center of gravity] This method requires that the index units for the basic operating weight, passengers, forward and aft sections of the aft baggage/cargo compartment (called Aft 1 and Aft 2 respectively), coat closet, and fuel be added together. The total of the index units must then be cross-referenced with the gross takeoff weight on the weight and c.g. envelope, and a mark should be made on the envelope to indicate where gross takeoff weight and index intersect. The point of intersection must fall within the forward and aft limits of the envelope. As explained in paragraph 4, it is also necessary to check that the intersection of the zero fuel weight and the corresponding zero fuel index falls within the c.g. envelope as well.

The specific index numbers are determined as follows:

1) Basic Index (BI)

This is the index for the Basic Operating Weight (BOW) of the aircraft. The BI is calculated according to the formula:

$$\frac{\text{Weight (lbs.)} \times (\text{STA} - 288)}{4{,}300} + 40$$

As stated in the FOPM, the following items are included in the BOW:

ITEM	WEIGHT (Pounds)	ARM (Inches)	MOMENT/1,000
Basic Empty Weight	(As Weighed)		
Flight Deck Crew and Bag	360	129.0	46,440
Crew Bags in Coat Closet	20	163.6	3,272

The BOW Station is derived by dividing the BOW Moment by the BOW. The Basic Operating Weight and its station are then used in the BI formula to determine the BI.

2) Index numbers for passengers, forward and aft sections of the aft baggage/cargo compartment (Aft 1 and Aft 2), coat closet, and fuel are determined through the use of the charts in this paragraph.
   a. Passenger Index Table

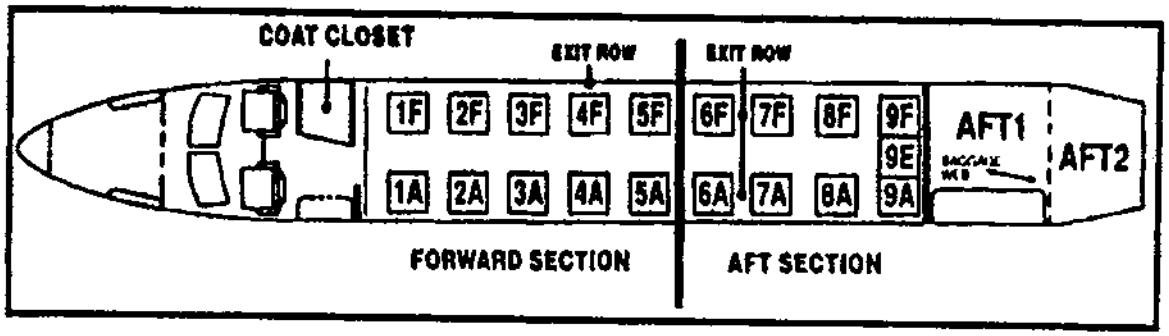
   Rows 1 through 5 of the aircraft are considered the forward section of the aircraft, and rows 6 through 9 are the aft section. Enter the chart on the left with the number of passengers seated in the aft section and on the top with the number of

passengers seated in the forward section. The passenger index for this combination appears where the row and column intersect.

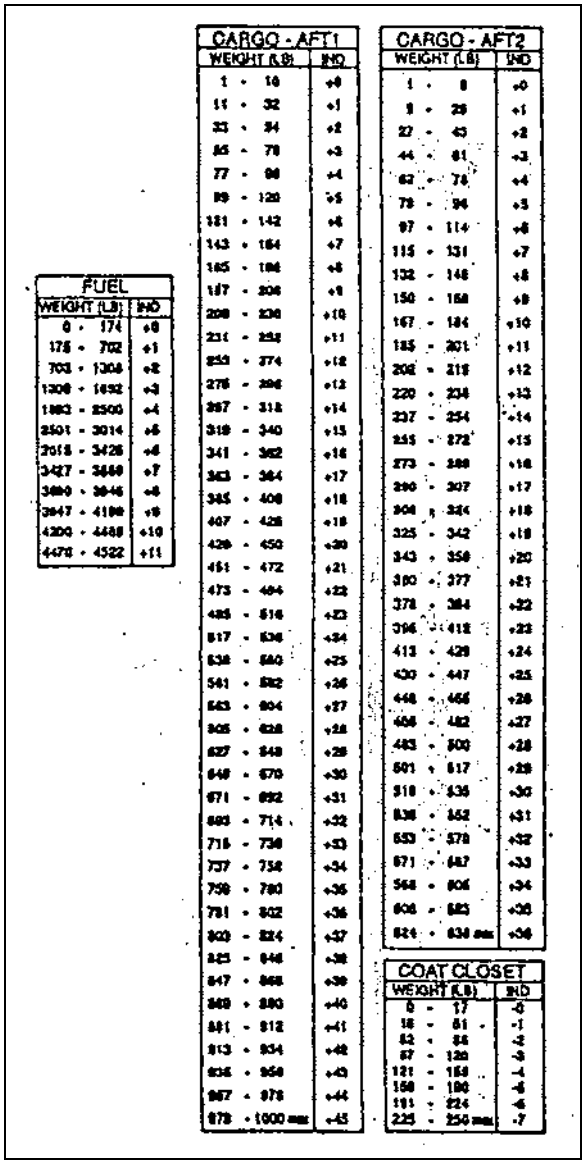
Passenger Index Table

PASSENGERS AFT	PASSENGERS FORWARD 0	1	2	3	4	5	6	7	8	9	10
0	0	-1	-2	-4	-5	-6	-7	-8	-9	-11	-12
1	+4	+3	+2	+1	-1	-2	-3	-4	-5	-7	-8
2	+8	+7	+6	+5	+4	+2	+1	0	-1	-2	-4
3	+13	+12	+11	+9	+8	+7	+6	+5	+4	+2	+1
4	+17	+16	+15	+13	+12	+11	+10	+9	+8	+6	+5
5	+22	+21	+19	+18	+17	+16	+15	+13	+12	+11	+10
6	+26	+25	+23	+22	+21	+20	+19	+18	+16	+15	+14
7	+31	+29	+28	+27	+26	+25	+23	+22	+21	+20	+19
8	+35	+33	+32	+31	+30	+29	+28	+26	+25	+24	+23
9	+39	+38	+36	+35	+34	+33	+32	+30	+29	+28	+27

Aircraft Interior Diagram



(b) Cargo - Aft 1, Cargo - Aft 2, Coat Closet and Fuel



FUEL	
WEIGHT (LB)	IND
0 - 174	+0
175 - 702	+1
703 - 1308	+2
1309 - 1892	+3
1893 - 2500	+4
2501 - 3014	+5
3015 - 3426	+6
3427 - 3846	+7
3847 - 4186	+8
4200 - 4468	+10
4470 - 4522	+11

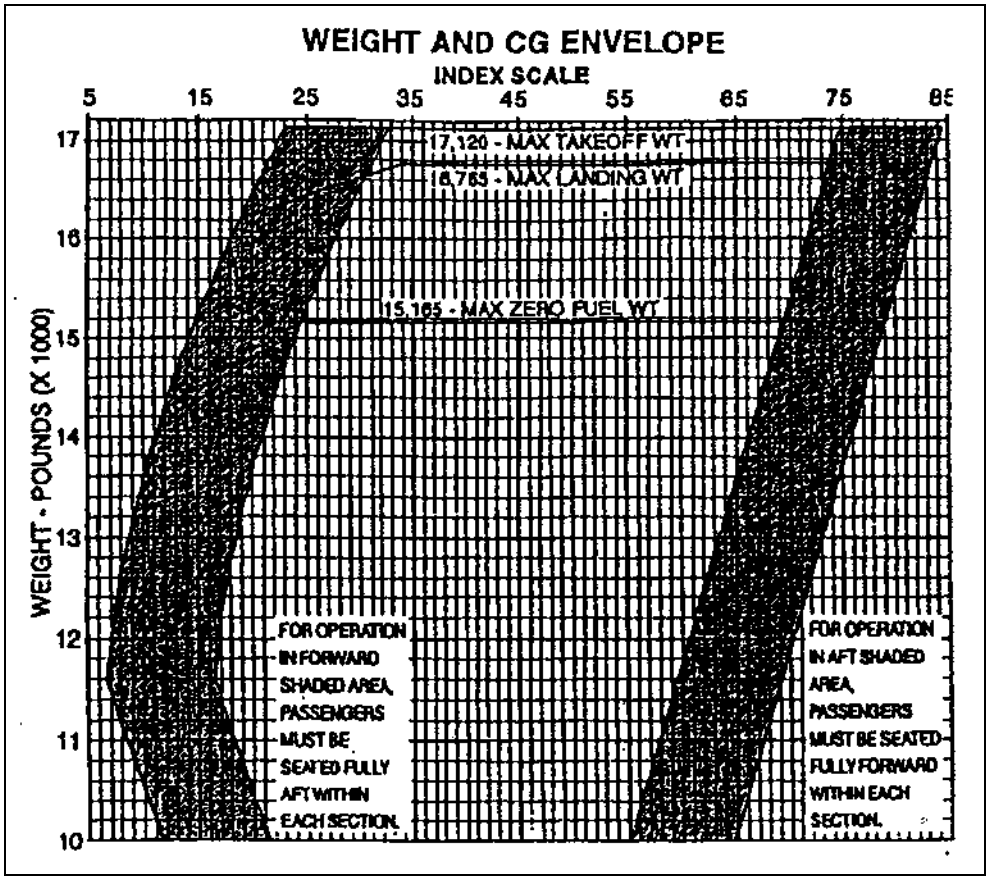
CARGO - AFT1	
WEIGHT (LB)	IND
1 - 10	+0
11 - 32	+1
33 - 54	+2
55 - 76	+3
77 - 98	+4
99 - 120	+5
121 - 142	+6
143 - 164	+7
165 - 186	+8
187 - 208	+9
209 - 230	+10
231 - 252	+11
253 - 274	+12
275 - 296	+13
297 - 318	+14
319 - 340	+15
341 - 362	+16
363 - 384	+17
385 - 406	+18
407 - 428	+19
429 - 450	+20
451 - 472	+21
473 - 494	+22
495 - 516	+23
517 - 538	+24
539 - 560	+25
561 - 582	+26
583 - 604	+27
605 - 626	+28
627 - 648	+29
649 - 670	+30
671 - 692	+31
693 - 714	+32
715 - 736	+33
737 - 758	+34
759 - 780	+35
781 - 802	+36
803 - 824	+37
825 - 846	+38
847 - 868	+39
869 - 890	+40
891 - 912	+41
913 - 934	+42
935 - 956	+43
957 - 978	+44
979 - 1000 max	+45

CARGO - AFT2	
WEIGHT (LB)	IND
1 - 8	+0
9 - 26	+1
27 - 43	+2
44 - 61	+3
62 - 78	+4
79 - 96	+5
97 - 114	+6
115 - 131	+7
132 - 148	+8
150 - 168	+9
167 - 184	+10
185 - 201	+11
202 - 218	+12
220 - 236	+13
237 - 254	+14
255 - 272	+15
273 - 289	+16
290 - 307	+17
308 - 324	+18
325 - 342	+19
343 - 359	+20
360 - 377	+21
378 - 394	+22
396 - 412	+23
413 - 429	+24
430 - 447	+25
448 - 466	+26
466 - 482	+27
483 - 500	+28
501 - 517	+29
518 - 535	+30
536 - 552	+31
553 - 570	+32
571 - 587	+33
588 - 606	+34
606 - 623	+35
624 - 638 max	+36

COAT CLOSET	
WEIGHT (LB)	IND
0 - 17	-0
18 - 51	-1
52 - 86	-2
87 - 120	-3
121 - 155	-4
156 - 190	-5
191 - 224	-6
225 - 250 max	-7

3.0.4 Weight and C.G. Envelope

As stated in the FOPM, the gross takeoff weight is referenced to the gross takeoff index on the WEIGHT AND CG ENVELOPE. The cross reference point must fall within the forward and aft limits for both takeoff and landing. Also check that the intersection of the zero fuel weight and the corresponding zero fuel weight index falls within the forward and aft limit. If the cross reference point falls within the shaded area on the weight and c.g. envelope, passengers must be seated as stated on the graph.

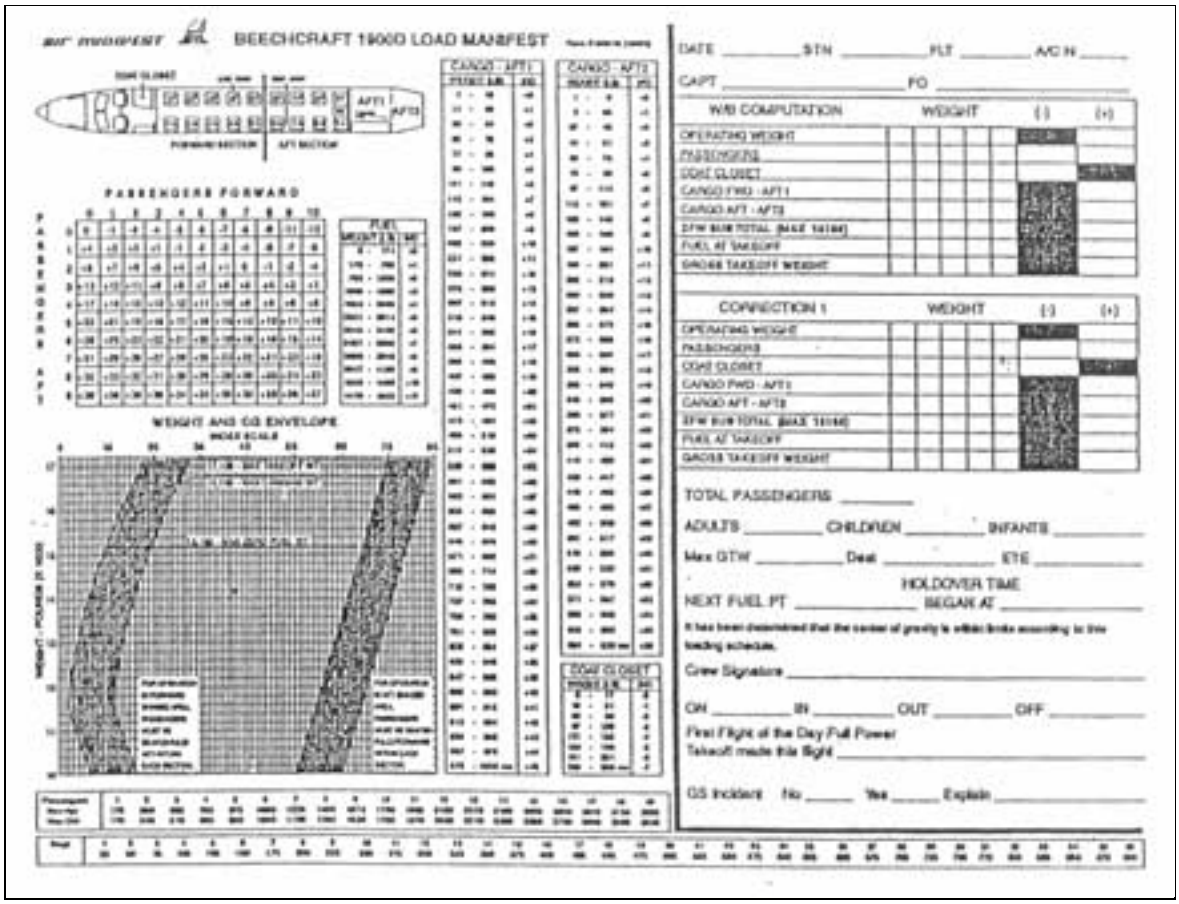


3.0.5 Beechcraft 1900D Load Manifest, Form F-0001E

The following was stated in section, "I. Forms," of the FOPM:

> This form is designed for use with the Beechcraft BE-02[12] aircraft only. It is a two part form. In normal operations a copy is left with the station and the original is carried aboard the aircraft. The form is designed so that in normal operations, the station operations personnel are responsible for the filling out of the data above the weight and balance computation and flight crewmembers are responsible for the remainder. This does not preclude crewmembers from filling out all of the required data on the manifest. BEFORE TAKEOFF, BOTH CREWMEMBERS WILL HAVE REVIEWED THE MANIFEST FOR ERRORS AND OMISSIONS.

Beechcraft 1900D Load Manifest, Form F-0001E

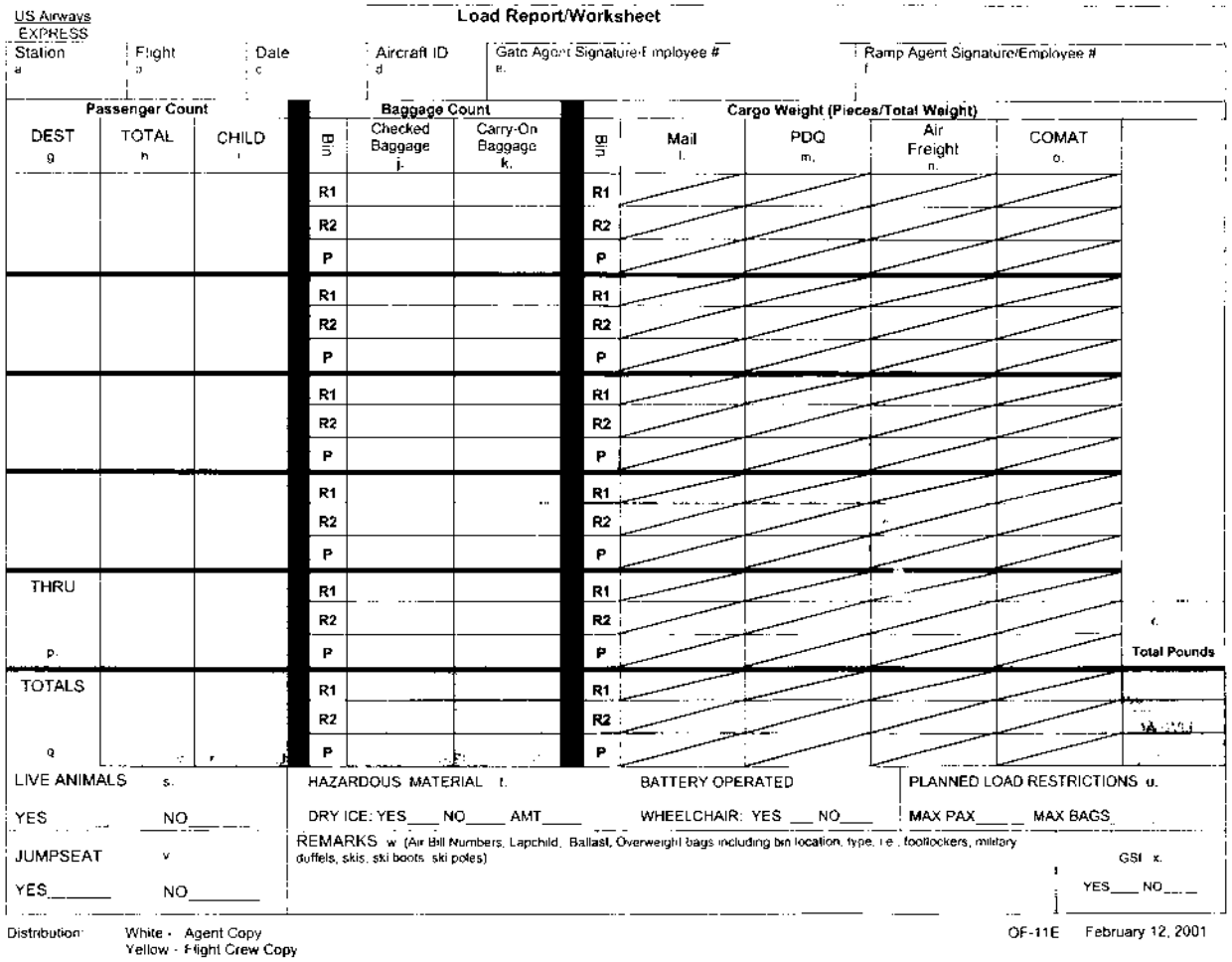


[12] BE-02 is the designation for the Beechcraft 1900D assigned by ATC for flight plan purposes.

The following are instructions for filling out portions of Form F-0001 E to the right of the heavy solid line. According to the FOPM, most of this area is self-explanatory to a crewmember, so only selected areas are discussed below:

1. OPERATING WEIGHT - The aircraft's empty weight & index plus crew and crew bag weight and operating oil.
2. PASSENGERS - Total weight and index of passengers.
3. COAT CLOSET - Total weight and index of carry-ons in the coat closet.
4. CARGO FWD - AFT1 - Total weight and index in the AFT 1 cargo bin.
5. CARGO AFT – AFT2 - Total weight and index in the AFT 2 cargo bin.
6. ZFW SUB TOTAL - Total of all weights and indexes. This weight excludes fuel and must not exceed the aircraft ZFW.
7. FUEL AT TAKEOFF - Total weight and index of the fuel.
8. GROSS TAKEOFF WEIGHT - Total takeoff weight and index.
9. TOTAL PASSENGERS - Total passengers.
10. ADULTS - Total adults.
11. CHILDREN - Total children.
12. INFANTS - Total infants.
13. Max GTW - Max allowable gross takeoff weight for that particular flight segment considering takeoff performance and maximum landing weight at the destination.
14. Dest - The aircraft's destination.
15. ETE - The flight's estimated time en route.
16. NEXT FUEL PT - The flight's next fueling point.
17. HOLDOVER TIME BEGAN AT - The time the left wing began to be de-iced/anti-iced in local time (24 hr. clock).
18. Crew Signature - The flight crew signature (either Capt or F.O.)
19. ON - The flight's touchdown time at the arriving station.
20. IN - The flight's arrival time at the gate.
21. OUT – The flight’s departure time from the gate
22. OFF - The flight's departure time off the runway.
23. First Flight of the Day Full Power Takeoff made this flight - An appropriate mark shall be entered here to denote when a first flight of the day full power takeoff is made. N/A may be entered, or the line left blank for all other departures.
24. GS Incident - An appropriate mark shall be entered by the pilot/station/ramp/operations agent as to any ground security issues affecting this flight. If "Yes" is marked the crew is alerted not to operate the aircraft until all security issues have been cleared. If possible an explanation should follow.

3.0.6 US Airways Express Load Report/Worksheet, Form OF-11E



US Airways EXPRESS

Load Report/Worksheet

Station a | Flight b | Date c | Aircraft ID d | Gate Agent Signature/Employee # e. | Ramp Agent Signature/Employee # f

Passenger Count			Baggage Count			Cargo Weight (Pieces/Total Weight)				
DEST g	TOTAL h	CHILD i	Bin	Checked Baggage j.	Carry-On Baggage k.	Bin	Mail l.	PDQ m.	Air Freight n.	COMAT o.
			R1			R1				
			R2			R2				
			P			P				
			R1			R1				
			R2			R2				
			P			P				
			R1			R1				
			R2			R2				
			P			P				
			R1			R1				
			R2			R2				
			P			P				
THRU p.			R1			R1				
			R2			R2				
			P			P				Total Pounds
TOTALS q			R1			R1				
			R2			R2				
			P			P				

LIVE ANIMALS s.
YES ___ NO ___

JUMPSEAT v
YES ___ NO ___

HAZARDOUS MATERIAL t.
DRY ICE: YES ___ NO ___ AMT ___

BATTERY OPERATED
WHEELCHAIR: YES ___ NO ___

PLANNED LOAD RESTRICTIONS u.
MAX PAX ___ MAX BAGS ___

REMARKS w. (Air Bill Numbers, Lapchild, Ballast, Overweight bags including bin location, type, i.e., footlockers, military duffels, skis, ski boots, ski poles)

GSI x.
YES ___ NO ___

Distribution: White - Agent Copy
Yellow - Flight Crew Copy

OF-11E February 12, 2001

The US Airways Express Load Report (OF-11E) is a document used to account for all passengers, bags and cargo loaded on a US Airways Express flight. The load manifest, completed by the flight crew, uses information from the completed OF-11E Load Report. The OF-11E must be given to the flight crew on all flights with the exception of ferry flights.

According to the FOPM and the US Airways Express Ground Operations Manual (EGOM),[13] the following areas should be completed on the OF-11 E:

a. Station - 3 letter station designator.
b. Flight - Flight number.
c. Date - Current date.
d. Aircraft ID - SABRE Ship Identification.
e. Gate Agent Signature/Employee # - Signature with employee number. This flight has been handled without any unresolved ground security incidents and passenger

[13] See Attachment 19 for further information.

counts verified (where applicable).

f. Ramp Agent Signature/Employee # - Signature with employee number. "I certify that this aircraft's cargo compartment has been loaded as annotated. This flight has been handled without any unresolved ground security incidents" and passengers counts verified (where applicable).
g. DEST - Destination city or cities 3-letter code(s)
h. TOTAL - Total number of passengers … includes ticketed children, NRSA [Non-Revenue, Space Available], NRSP [Non Revenue, Space Positive], Note: un ticketed lap children will NOT be included in the total, but will be designated In the Remarks section.
i. CHILD - Use only if weight restrictions apply. Total number of ticketed children. A person who has NOT reached their 12th birthday Is considered a child for weight and balance calculations.
j. Checked Baggage - Checked baggage, crew baggage is counted by piece, NOT by weight. The BIN location of all bags must be completed. All baggage will be counted as 1 piece regardless of size or weight. (e.g.: footlockers, military duffel bags). Any overweight, oversize bags must be noted in the remarks section. The BIN locations are as follows:

    B19: R1 - Forward of net
    R2 - Aft of net

k. Carry-on baggage - Carry-on baggage Is counted by piece, NOT by weight. The BIN location of all bags must be completed. The BIN Locations are the same as those for checked baggage. All carry on baggage that Is located In the cargo bin must be counted and annotated. The crew will make the determination regarding the weight of the carry on bag.
l. Mail - Shown in pieces/weight In pounds, with correct BIN location (s).
m. PDQ[14] - Shown In pieces/weight In pounds, with correct BIN location (s).
n. Air Freight - Shown in pieces/weight In pounds, with correct BIN location (s).
o. COMAT[15] - (Company Material), shown In pieces/weight In pounds, with correct BIN location(s).
p. THRU - MUST include all of the above Information for THRU passengers, baggage and cargo.
q. TOTALS - Must Include totals for each category, total passengers, (including THRU), and total carry-on pieces and checked pieces (NOT weights) Mail, PDQ. Air Freight, COMAT.
r. Total Pounds - The combined weight of ALL cargo in each BIN. The crew must verify the total weight calculations.
s. LIVE ANIMALS – Must check YES or NO to indicate whether animals have been loaded on the aircraft.
t. HAZARDOUS MATERIAL - Must check YES or NO to indicate whether DRY ICE or BATTERY OPERATED WHEELCHAIR have been loaded on the aircraft.
u. PLANNED LOAD RESTRICTIONS – Used when advised of weight restrictions by dispatch. This information is normally located on the flight release or provided by

[14] "Packages Delivered Quick" is the name of US Airways small package cargo service.
[15] COMAT is an industry term developed and used by air carriers and is generally used to describe a wide array of company materials including replacement items for installed equipment and consumable materials.

the crew.

v. JUMPSEAT – Indicate whether the jumpseat is being occupied. (NOTE: for B1900 or J31/32 check NO and include passenger in the TOTAL count and reflect jumpseat rider in the remarks section)
w. REMARKS – Items included are (but not limited to) air freight shipments (airbill number/number of pieces/destination), PDQ shipments (airbill number/number of pieces/destination), ballast, number of footlockers, duffel bags, and overweight bags, (e.g., 2 footlockers R1, 3 duffel bags R2), skis, ski boots, ski poles. Jumpseat rider information (B1900, J31/32 only), lap children, etc.…
x. GSI – Ground Security Incident. Must be checked YES or NO. If the block is checked YES, crew must be notified prior to departure.

According to Section 5 – Baggage & Cargo Loading, in the US Airways Express Ground Operations Manual (EGOM),[16] upon completion of the OF-11 E, the top copy (station copy) is for station use and the second copy (flight crew copy) is given to the flight crew. If passengers or bags are added after the OF-11E has been completed and given to the crew, the crew must be notified. These changes must then be noted in the REMARKS section on the station copy of the OF-11E. The agent making these changes must initial the REMARKS section. No matter how small, all items must be recorded on the OF-11 E.

3.0.7 Carry-On Baggage

According to Section 5 – Baggage & Cargo Loading, in the US Airways Express Ground Operations Manual, aircraft operated by US Airways Express have limited space for carry-on items. Items that are too large to fit onboard the aircraft must be tagged with an Express Carry-on tag and placed in the cargo bin of the aircraft. These items will be returned to the customer upon deplaning. Items without the carry-on tag will be sent to baggage claim and not only result in customer dissatisfaction but can also result in missed connecting flights.

All baggage loaded in the cargo compartment must have a tag attached to it. Bags that are tagged with the carry-on tag will be loaded last and offloaded first at the destination.

> NOTE: Any item found without a tag in the cargo bin must be considered to be a tag-off bag and is to be taken to baggage claim. Tag-off items cannot be assumed to have been screened and may not be taken into a sterile area.

3.0.8 Cargo Removal

According to Section 5 – Baggage & Cargo Loading, in the US Airways Express

[16] See Attachment 19 for further information.

Ground Operations Manual, when weight restricted, the following list is used to determine what will be removed from the aircraft. The order of removal list begins with the item of lowest priority to be removed first. Removal order is top to bottom.

A. First Available COMAT-Black and White label
B. NRSA Human Remains
C. NRSA Passengers
D. Other Air Freight (Including employee shipments)
E. Air Freight Perishables
F. Must Ride COMAT-Red and White Label
G. Air Express (including employee shipments)
H. Articles of extraordinary value (Air Freight)
I. Live Animals (Air Freight)
J. PDQ (including employee and live animal shipments)
K. U.S. Mail (See F"COP/CARGO/REMOVAL for order of mail removal.)
L. Must Be There Today-Aircraft Maintenance - Black and Yellow Label
M. Urgent Medical Supplies or Organs for Transplant (Shipped as PDQ)
N. Revenue Human Remains
O. Voluntary Denied Boarding Compensation for revenue passengers
P. Baggage (including live animals checked as baggage)
Q. Revenue and Non-Revenue Space Positive passengers
R. Non-revenue must ride crew movement
S. In flight medical oxygen
T. AOG COMAT - Red and White Label

3.0.9 Weight and Balance procedures As Stated By Pilots During Interviews

During interviews conducted by the Operational Factors / Human Performance Group, the following information regarding weight and balance procedures was stated by pilots:

Captain David W. Bumpus, Beech 1900 Captain/Line Check Airman, stated that passenger weights are always averaged. Passengers are only weighed when doing charters, such as military charters, etc. Carry-on bags, if taken on board and stowed under the seat, are counted as part of the passenger weight. If a bag is put in the coat closet, it is pilot's discretion about how the weight is handled; if it is in the baggage compartment, it is in the bag count.

There is no significant assessment of carry-on bags; if it fits under the seat, it is okay. If he sees someone really struggling with a bag, he will ask to have it put in the back.

The captain normally does the weight and balance but sometimes lets the first officer do it. The captain then checks it. The crewmember that completes the form signs it. He tells pilots to be aware of what is being put in the airplane. He talks to pilots about weight and balance, shifting, and moving people if necessary to stay within weight and

balance limits. He said it is normally not a problem when they have to remove bags or passengers. No report is required to be filled out. Bags are just put on the next flight.

Crew bags can go in the Aft 1 and Aft 2 baggage compartment. There is a net between Aft 1 and Aft 2. Sometimes crew bags are put in the closet.

He said overweight bags are normally noted on the "OF-11," but he has been told about bags verbally by loaders on occasion.

He said no bag really weighs 25 pounds. The average bag weight is "way over 25 pounds." His own bag weighs more than 25 pounds. He said the average crew bag weighs 45-50 pounds.

When loaded, the airplane nose gear should be fully extended, then go down as the airplane starts to move forward. The Beech 1900D normally sits tail-low anyway; you can see it when you are outside of the airplane: tail low, nose high. It depends on how the gear struts are serviced as to how they will look.

During an interview with Captain Eric Jefferson conducted by the Operational Factors / Human Performance Group, Captain Jefferson stated that normally the captain does the weight and balance. Every now and then if the first officer requests it, he will let him do it, and monitor it.

Describing things to pay attention to on weight and balance, Captain Jefferson said you need to be aware of parameters, limits fore and aft, making sure the count is accurate (passengers and bags), accounting for the tire in the aft compartment, etc. They make sure the bag count is correct by asking the ramp agents if it is correct.

He never had a situation that he is aware of where there had been more bags on board than were listed on the manifest. He usually likes to check with the ramp agents before he is finished with the sheet to make sure the bag count is consistent with what he had listed.

He has never had anyone tell him that there were too many bags; he routinely asks the ramp agents what the bag count is.

He said it was rare that the c.g. was up against the aft c.g. limit but it does happen when the airplane is full; maybe 1 percent to 2 percent of the time that it gets into the gray area of the aft limit. Very rarely does he see it out of the white area. It seems to be more forward in the white area than aft, based on his recollections.

During an interview with First Officer Laura Yoder conducted by the Operational Factors / Human Performance Group, First Officer Yoder stated that the captain does the weight and balance. She said pilots are not specifically trained to use actual weights for weight and balance computations. They were trained to use the "index method." Never had the situation come up before where they used actual weight instead of the index

number (counting bags and using the index number). Heavy or overweight bags are not trained in ground school. When she had flown with military duffels on board, they counted them as 2 bags because they are heavy bags.

She was asked about company pressure if she left bags behind. She stated that if it came up, and it has not come up, she would err on the side of caution. She really believed that if she chose to do something like that, the company would back her up. The company has never given them a hard time over leaving bags behind, especially when it is erring on the side of caution.

When asked if there is a written procedure for handling bags that are overweight, she said that she would have to look. It just had not occurred to her before, other than a wheel chair. She stated that It is either on the back of the sheet or in the FOPM that duffels are to be counted as 2 bags.

During an interview with First Officer Keith Varney conducted by the Operational Factors / Human Performance Group, First Officer Varney stated that when flying with the accident captain, they put their suitcases in the forward coat closet. Some pilots put them in the aft area of the baggage compartment then they would annotate that on the weight and balance form. When the accident captain did the weight and balance she would hand it to him to check the math.

He stated that he had encountered a problem in the past where there was too much weight in the aft baggage compartment. To solve the problem, bags were left behind. Every captain he has flown with was particular about weight and balance; if the numbers are close, they double check them. The accident captain had him check the math on the weight and balance form on every leg when they flew together.

Before Christmas, a lot of people were going home, and had extra bags (with 19 passengers). They moved some bags from the cargo bin to the coat closet, after doing the weight and balance computations.

If a bag is noted as being heavy, ramp agents bring it to the crew's attention. They would annotate it on the paperwork as a larger bag than the normal weight requirements. They just add the additional weight on top of the weight of the bags that are already there. They do not weigh the bags. Usually the captain will add additional pounds on top of the bag count when they are told about heavy bags.

Training in ground school was pretty straightforward about weight and balance. They talked about heavy bags with respect to 25 pounds vs. 45 pounds, duffle bags, etc. They went through the process of filling out the sheet, etc. This was especially true in the upgrade class that they cover that.

The times he flew with the accident captain, she offered to let him do the weight and balance but he declined; however, he did check the math and found it to be correct. Any captain who let him do the weight and balance would double check his math, too.

A checked bag has a white slip on it that the ticket agent puts on the bag. A carry-on bag is usually a roller bag that has a yellow tag given to them by the ticket agent when they go out to the airplane.

A normal roller bag, or something not much bigger, is considered to weigh 25 pounds and a military duffle bag is considered to weigh 45 pounds. This information is in the FOPM, he said.

If he were told that a heavy bag was on board, he was asked if he would count it as two bags or just add extra weight. He said that he would add the extra weight.

First Officer Varney stated that heavy weights are kind of a non-event for our pilots because we are very well trained. Heavy weight does not always mean there is an aft c.g.

He said that he uses 45 pounds for a heavy bag. He also stated that "it is very common for the tail of the aircraft with an aft c.g. to appear very low." He said when they put bags in the coat closet they do annotate that on the manifest. He has had to leave bags behind.

During an interview with First Officer John Marx conducted by the Operational Factors / Human Performance Group, First Officer Marx stated that when he brings a suitcase, he does what the captain does; he either puts it in the coat closet or in the R2 area, and includes it on the paperwork as 2 crew bags plus a spare tire in R2. If it is placed in R2, it is 25 pounds per bag.

Captains will usually let first officers practice doing the weight and balance. The captains then double and triple checks the numbers because the captain is responsible for the paperwork.

The "lingo on the load sheet is duffle" for a heavy bag. If you had 10 bags and it said one of them was a duffle, then you use the same amount of weight as 11 bags. The captain does the paperwork and release while the first officer is attending to passenger loading. He likes to look at the bags as much as he can. He had never heard of a procedure where they count a heavy bag as 3 bags. He learned the weight and balance procedure in ground school. He did not recall if it is written guidance or not. He thinks it is in the weight and balance section of the FOPM.

His IOE instructor stressed double-checking the numbers on the weight and balance form. The indexes are minus when bags are in the coat closet, etc. There is nothing out of the ordinary other than being very careful and taking your time. A calculator can be used if desired. Double-check or triple-check your numbers. He was told about duffels in the same way he was trained; counting each duffle as an additional bag over and above the bag count. They did not spend a lot of time on weight and balance.

During an interview with Captain Larry Moore conducted by the Operational Factors

/ Human Performance Group, Captain Moore stated that his personal preference is to have the first officer look over the weight and balance paperwork. The captain is responsible for it. The first indication of weight and balance is on the release. He starts compiling the information on the weight and balance sheet, and they get the bag count last from the ramp agents. You have to rely on what they say. He computes the weight and balance, making sure the c.g. is in the c.g. envelope on the form. They do not go back and recount the bags; that is not required. Doing that would inhibit their ability to make on-time departures and to do their job.

In his experience, he has not seen heavy bags listed on the manifest itself; nothing other than the 25 pounds per bag. When asked what he would do if he saw 15 bags plus 3 heavy bags on the form, he said that he would use the captain's authority to weigh heavy bags. He stated that he would make them take them off and re-weigh them. He said he cannot think of any specific written guidance about heavy bags.

He stated that crew bags are part of the crew weights, even suitcases.

During an interview with Captain Joseph Navar conducted by the Operational Factors / Human Performance Group, Captain Navar stated that sometimes when they are overbooked or overloaded they sometimes have to bump passengers or bags. He said there is no pressure in his opinion to take an airplane that is overweight or out of balance.

During an interview with Captain Dustin Green conducted by the Operational Factors / Human Performance Group, Captain Green stated that he received weight and balance training in ground school. An hour or a couple of hours were spent on weight and balance. They figured out the weight and balance, and the number of bags and people that can be on the airplane to still be in the c.g. envelope, or if bags or people need to be removed.

Having to reduce the weight of the airplane has only happened to him twice in the last five months or so. This happened when they had 19 people and 35 or 45 bags and a 100 pounds of freight. They ended up taking 100 pounds of freight off to remain at an acceptable weight. The load sheet from the ramp agent is the count from the carry-on bags and the checked bags. For any mail or freight, the actual weight of the pieces is used. He trusts the ramp agent to tell him about heavy bags. They do not put a heavy bag on board without noting it on the sheet that it is extra heavy or a military duffle, etc. With that information, he usually goes back and checks it, or counts it as two bags; two bags equal a heavy bag. He has only encountered that situation once. He did not recall where he learned that two bags equal a heavy bag. He was not aware of any written guidance that tells him to do that. At Air Midwest, as a captain, a heavy bag notation on the load manifest happened maybe a handful of times, perhaps five to ten times; a duffle or heavy bag was written on the bottom of the remarks section.

The Air Midwest Basic Operating Weight for the airplane calculation is just a weight; it comes out of a page in the "blue book." They include a pilot plus one bag and a first officer plus a bag. He could not remember the bag weights for that. The first officer's bag

is assumed to be a personal bag. He puts the pilots' bags in the coat closet or in the baggage compartment. The flight bags are counted in the weight but the crew bags are not; they are separate and not part of the BOW; that is his understanding and the way he has treated it just to be safe. When you get duffels on the aircraft, you count them as duffle weight, as found in the FOPM.

During an interview with First Officer Austin McDonald conducted by the Operational Factors / Human Performance Group, First Officer McDonald stated that sometimes they would be overweight in the back and have to move things to the coat closet. He never had a situation where they would have to remove things from the airplane.

During an interview with Captain Rohit Mansukhani conducted by the Operational Factors / Human Performance Group, Captain Mansukhani stated that when he shows up at the airplane he goes through the "blue book" to make sure there are no discrepancies. The BOW and index are in the book. There is also a sticker on the left side of the flight director with the BOW and index. He cross-checks it with what is in the book. About 25-30 minutes before departure he starts filling out the weight and balance sheet; the BOW and index, tire weighing 45 pounds with an index of 3. If there are no delays, he adjusts the fuel weight by subtracting 110 pounds of taxi fuel from the total fuel. He fills out all of the general items that he can and then signs the form. After passengers are boarded, the agent gives him the yellow copy of the "OF-11" sheet. The first officer crosschecks the number of passengers on the airplane against the sheet. He puts the "split" on the sheet, calculates it, looks at the bag count, COMAT, etc., and puts that on there, too. He then makes sure they are within the c.g. envelope. The first officer looks over the whole thing but the captain is the one doing it. He hands one weight and balance sheet out the window, and gives the yellow sheet back to the first officer.

Here is the way they do the "split" on the weight and balance form: If, for example, there are 19 passengers, the "split" is 10 and 9. If there are 15 passengers, then it is how many are seated forward of row 6 and how many are aft. For example, if 5 people are seated forward, we may need to move 1 or 2 people aft of seat 6. Generally, just by thinking about it, if there are 5 or 6 people, most first officers would ask them to sit in rows 6, 7, or 9.

The bag count is shown on the "OF-11." The bag count consists of checked bags and carry-on bags in the baggage compartment. Each bag is considered to weigh 25 pounds. The carry-on bags are considered to weigh 25 pounds if they are in the back; if inside the cabin, the bags are included in the passenger weight. A military duffle is considered to weigh 50 pounds. If a bag is located in the coat closet, it is 25 pounds or 10 pounds, whatever the captain determines. He uses 10-20 pounds as a general number. The closet capacity is 250 pounds. He does not go to the back of the airplane to check that the number of bags in the airplane is the same as the number of bags on the sheet.

He would not know for sure if there are any heavy bags on board. Sometimes on the "OF-11" in the remarks section it would say "1 duffle counted as 2 bags, or 1 heavy bag

counted as 2 bags." That has kept him reasonably assured that the ramp agents have been trained to identify a heavy bag. They used to fly to Augusta, Georgia, and there would always be, in the remarks, that there were 3 duffle bags counted as 6 bags. It is counted in the remarks section. He has not seen it where they do not put down an associated bag count with a heavy bag indication on the "OF-11" remarks section.

He remembered covering weight and balance in ground school. US Airways changed the "OF-11" recently, and that was covered fairly closely. He did not have any problems understanding it in ground school and did not think any of the other pilots in the class did either. Per the FOPM, it says a military duffle equals 50 pounds and that translates into 2 bags. He guesses that because it is notated on the "OF-11," he could not remember it being counted as 3 bags. Whoever signs the "OF-11" sheet and sends it up to him determines whether to list it as 2 bags.

Sometimes he puts his crew suitcase in the coat closet and sometimes he puts it in Aft 2; about half and half. If it seems that they are going to be full, or fuller, he puts his stuff in the back. If the flight is not that full, he would keep it up front. It is part of his weight and balance calculations. If it goes in Aft 2 it is reflected on the bag sheet; if it stays up front, it is his discretion as to what to put down. The average is 25-30 pounds for his bag. He never tells the ramp agents that his bag weighs more. The Aft 2 area uses a different index. For example, on the weight and balance sheet it has a separate spot to put it in. The maximum Aft 2 weight is 630 pounds and Aft 1 is 1,000 pounds. Generally, the only thing he sees coming up on the "OF-11" sheet for Aft 2 is the tire. They use the Aft 2 loading schedule for Aft 2 weights.

When a heavy bag is loaded on the airplane, it just shows up as a heavy bag on the sheet. Say there were 10 total bags. In the remarks section, he would see one military duffle counted as 2 bags. He has asked the ramp agents in the past, do you mean 10 bags and do you want me to make the adjustment for this? The ramp agent said, no, there are 9 bags and we have made the adjustment. He sees 10 bags on the form and there would really be 9 bags. If he had 1 soldier and 1 bag, he would expect to see in the remarks section as 1 duffle bag counted as 2 bags. That phrase comes to his mind, but he is not sure if it is the exact phraseology because they go to so many different stations. The remarks section is really the only way they tell the crew there are heavy bags on board. He did not remember someone ever coming up to tell him that they have got heavy bags. The remarks section is his only source of information, hopefully a good source of information.

Passenger seat rows 1 to 5 are "forward;" rows 6 to 9 are "aft," for weight and balance purposes.

A heavy airplane definitely sits on the ground differently. The nose is higher and the tail is lower. Once the engines are running it feels like the nose comes down a little bit. Taxiing does not seem to feel any different. It is a noticeable decrease in pitch when the nose comes down but he could not say how much.

He stated that the crews are concerned about the total number of bags they get.

His only source of information about how that weight had been handled, was getting the figure numerically on the "OF-11" sheet, in the remarks section; he would hope that a heavy bag would be counted as 2 bags and noted in the remarks section. A huge cross-section of stations has put in the remarks section that a heavy bag/military duffle was counted as two bags. He has been looking at his FOPM the past couple of days and he has not found anywhere where they count a duffle as 2 bags or heavy bag as 2 bags.

He recalled that in some situations they have given him paperwork with a close connecting bag and said, "oh captain, can you add two checked bags." He said it is possible that it was either 2 bags or 1 bag that was a heavy bag and they told him it was 2 because of that. He did not know. He did not remember being told that it was a heavy bag. Essentially to him, they are translating to the same thing, he is adding 50 pounds.

He said if a late bag were heavy, the agents would verbally tell the crew, and both the captain and the agent would update their "OF-11" copies. The crew watches the agent update the form.

He was given an example as follows: 10 checked bags, 10 carry-on bags, and in the remarks section it says there are two heavy bags on board. How many bags total are on board? He said there would be 10 carry-on bags because he has not seen them counted as "heavy." If the remarks said 2 military duffels counted as 4 bags, his understanding would be that there would be 8 physical checked bags. He said that the ramp agents automatically adjust the total bag count for the heavy bags.

With one soldier and one duffle he would expect to see 2 bags in the bag count section of the "OF-11." In the remarks section would be written 1 duffle counted as 2.

For taxi fuel burn, 110 pounds is just a starting point. He would put down more depending on what the situation was. If it is going to be a long taxi or there will be a delay getting out, he would put more; never less.

You see "heavy bags" in the remarks section once a week to 10 days on average. Nobody had ever come up late and said that they had put two heavy bags on board. What has happened is while he is doing the weight and balance, the cargo door is still open, and the first officer is in the seat, and the door is closed, a ramp agent comes over and says they are adding two bags. At some stations they are giving you the white and yellow copies of the form. CLT gives you only the yellow copy; he makes a change in the bag count on the yellow copy, and the white copy gets changed by the ramp agent. He had never been told that it is two heavy bags. It very well could have been 1 heavy bag and they are making the calculation and giving him the end result.

During an interview with First Officer Fotis Michelakos conducted by the Operational Factors / Human Performance Group, First Officer Michelakos stated that he checks the release restriction for weight and balance. He checks the load manifest, every single item on the manifest. If overweight, you take off bags. Both pilots check it. All bags are considered to weigh 25 pound per bags except military bags that are much bigger; their

weight is doubled to 50 pounds. Actually, it is 25 pounds if it is a big bag, but it is up to the pilot. You add more pounds at your discretion. Twenty-five pounds is the approved number by FAA. If the captain did not feel it was safe, that the bags are more than 25 pounds and it would be overweight, he could take some of the bags off.

Either the ramp agent is going to come and say a bag is heavy, or it would have a tag on it. The captain would step out and check the bag. If something about the bag were brought to the captain's attention, the captain would normally go back and check the bag. If for any reason the captain did not feel it was safe or if he thought a bag was not 25 pounds he would not allow it. He did not see this too often.

With soldiers on board, there are usually military bags, big green bags. He watches them load the airplane and watches them board. As a first officer he checks the baggage compartment personally every time.

The agent will say to them that a bag is heavy, or there will be a tag that says it is heavy, or they check the bag physically when they are doing a walk-around. They usually check the bags because they have the ability to do that on this airplane.

Sometimes they forget to list the tire on the paperwork. You just check it. If something comes to his attention he tells the captain, "you know captain, we got several heavy bags and they do not look like 25 pounds." The captain would check them himself. If he feels they are heavy he adds more weight on the form. If the airplane were out of limits then he would take bags off. He had no idea if there is a written procedure for it.

He did not remember how the ramp agents did it when there is a heavy bag and the pilots were already in their seats. He did not know exactly how they would count a bag that was heavy but within weight limits but it was his understanding that they would add more weight to the form for the bag.

Lets say there are 10 bags but some of those bags are heavy. The release restriction says 12 bags. According to the paperwork they are okay but they add weight to the form for the bags. If the limitation had not been exceeded they are okay; if exceeded, they take bags off.

The FOPM says how to handle heavy bags. He did not think there is any other way to know if heavy bags are put on the airplane, other than it is a green bag, has a heavy tag, or the bag looks heavy. He did not know if there is a procedure for listing a heavy bag on the "OF-11." That is more of a captain's task to fill out the "OF-11." He has filled out weight and balance forms before but he did not know how often. It was usually when the airplane was light. The captain checked it. He has done it about 5 times or so. He did not know if it is standard for the captain to have the first officer check the weight and balance but they usually do it. They check the whole sheet. The person who does the weight and balance signs the form. You know from checking around the airplane if there are heavy bags on board. A ramp agent could also tell you there are heavy bags on board. We do not have any sheet that will say specifically what the weight of the bags is.

3.0.10 Weight and Balance History – Accident Airplane

The following table is a summary of certain information listed on the Beechcraft 1900D Load Manifest Forms for flight segments flown by the accident airplane between January 1, 2003 and January 8, 2003 (working backwards from the accident flight):

Date of Flight	Flight No.	Flight Crew	Gross Takeoff Weight *	C.G. Index	No. of PAX	Cargo FWD – AFT1	Route
1/8/03	5481	Leslie/Gibbs	17,018	81	19	775	CLT-GSP
1/8/03	5434	Green/ Doxey	16,278	48	15	425	LYH-CLT
1/7/03	5461	Green/ Doxey	15,118	32	6	150	CLT-LYH
1/7/03	5441	Leslie/ Gibbs	13,307	29	2	25	LYH-CLT
1/7/03	5441	Leslie/ Gibbs	14,428	31	3	75	CLT-LYH
1/7/03	5514	Leslie/ Gibbs	13,618	19	0	0	LWB-CLT
1/7/03	5514	Leslie/ Gibbs	14,653	35	7	300	CLT-LWB
1/7/03	5585	Leslie/ Gibbs	15,278	42	9	275	AHN-CLT
1/7/03	5585	Leslie/ Gibbs	14,413	43	3	418	CLT-AHN
1/7/03	5428	Jefferson/ Smith	13,318	20	0	0	HTS-CLT
1/6/03	5496	Mansukhani/ Marx	15,703	44	9	300	CLT-HTS
1/6/03	5595	Jefferson/ Smith	13,928	25	3	75	AHN-CLT
1/6/03	5595	Jefferson/ Smith	15,153	43	6	275	CLT-AHN
1/6/03	5435	Jefferson/ Smith	15,753	43	9	350	LYH-CLT
1/6/03	5435	Jefferson/ Smith	15,068	40	8	450	CLT-LYH

Date of Flight	Flight No.	Flight Crew	Gross Takeoff Weight *	C.G. Index	No. of PAX	Cargo FWD – AFT1	Route
1/6/03	5433	Jefferson/ Thompson	15,523	53	14	425	LYH-CLT
1/6/03	5433	Jefferson/ Thompson	15,068	40	8	450	CLT-LYH
1/6/03	5515	Navar/ Michelakos	16,393	70	19	550	GSP-CLT
1/6/03	5508	Navar/ Michelakos	13,493	24	1	0	RDU-GSP
1/6/03	5529	Navar/ Michelakos	13,468	27	3	25	AVL-RDU
1/5/03	5519	Navar/ Michelakos	14,168	38	5	175	GSP-AVL
1/5/03	5519	Navar/ Michelakos	14,543	33	3	100	RDU-GSP
1/5/03	5473	Navar/ Michelakos	14,943	37	7	200	GSP-RDU
1/5/03	5473	Navar/ Michelakos	15,093	25	1	0	AVL-GSP
1/4/03	Scheduled Down Time						
1/3/03	5519	Tolleson/ Parker	13,845	26	1	50	GSP-AVL
1/3/03	5519	Tolleson/ Parker	14,735	32	2	50	RDU-GSP
1/3/03	5470	Tolleson/ Parker	14,925	30	9	75	ORF-RDU
1/3/03	5467	Tolleson/ Parker	14,072	28	1	72	RDU-ORF
1/3/03	5467	Tolleson/ Parker	15,235	41	8	300	CHS-RDU
1/3/03	5503	Tolleson/ Parker	15,225	31	7	175	RDU-CHS
1/3/03	5527	Tolleson/ Parker	13,670	27	1	75	GSP-RDU
1/3/03	5481	Tolleson/ Parker	15,275	38	7	325	CLT-GSP
1/3/03	5428	Jefferson/	15,688	34	9	275	HTS-CLT

Date of Flight	Flight No.	Flight Crew	Gross Takeoff Weight *	C.G. Index	No. of PAX	Cargo FWD – AFT1	Route
		McDonald					
1/2/03	5496	Jefferson/ McDonald	14,013	25	1	0	CLT-HTS
1/2/03	5576	Navar/ Michelakos	13,768	32	3	125	HTS-CLT
1/2/03	5576	Navar/ Michelakos	16,218	42	11	375	CLT-HTS
1/2/03	5464	Green/ Doxey	16,444	69	15	501	HTS-CLT
1/2/03	5464	Green/ Doxey	15,453	40	8	300	CLT-HTS
1/2/03	9491	Foster/ Marx	Part 91				ORF-CLT
1/2/03	5529	Foster/ Marx	14,248	21	2	25	AVL-RDU
1/1/03	5519	Foster/ Marx	13,408	23	2	125	GSP-AVL
1/3/03	5519	Foster/ Marx	14,198	20	2	25	RDU-GSP
1/1/03	5473	Foster/ Marx	13,533	24	2	50	GSP-RDU
1/1/03	5473	Foster/ Marx	14,278	26	5	175	AVL-GSP
1/1/03	9508	Foster/ Marx	Part 91				CTL-AVL
1/1/03	9490	Foster/ Scola	Part 91				HTS-CLT

* All flights include 45 pounds for one tire in aft baggage compartment (R2)

3.0.11 Average Weight Validation Program[17]

The FAA issued Notice 8400.40, dated January 24, 2003, "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 14 CFR Part l21 operations to conduct a survey to validate the average weights contained in their Weight

[17] See Attachment 21 for the FAA issued Notice 8400.40, "Weight and Balance Control Programs for 10 to 19 Seat Airplanes Operated Under 14 CFR 121."

and Balance Control Program. The survey was conducted over a three consecutive day period that included a Sunday, Monday, and Tuesday at 30 percent of the operator's stations. The three specified days represent two heavier traveled days and one lighter traveled day. Of the stations sampled, 15 percent 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 carrier's Weight and Balance Control Program or the carrier could either elect to use actual weights or conduct a comprehensive survey, as outlined in AC 120-27C, Aircraft Weight and Balance Control, effective November 1995, to determine new average weights.

The FAA stated that they are 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.

The following table represents the results from the average weight survey for carriers affected by N8400.40.

FAA Notice 8400.40 Survey Results

Air Carrier	Average Adult Wt. (lbs.)	Sample Size	Average Carry-On Wt. (lbs.)	Sample Size.	Average Checked Bag Wt. (lbs)	Sample Size
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

Survey Categories	Survey Average Weight (lbs)	Increase/(Decrease)
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

4.0 AIRPORT INFORMATION

4.0.1 General

Charlotte/Douglas International Airport (CLT) is located approximately 4 miles west of Charlotte, North Carolina. The airport is served by a complex of one set of parallel runways and one non-parallel runway for a total of three runways. The parallel runways are numbered runway 18R-36L and runway 18L-36R. The single non-parallel runway is numbered runway 5-23. The airport elevation is 748 feet mean sea level (MSL).

The active runway for Air Midwest flight 5481 on the day of the accident was runway 18R, the longest runway at CLT (10,000 feet). Runway 18R is served by an instrument landing system (ILS) which is approved for Category I approaches. A detailed description of each of the runways is shown on the next page.

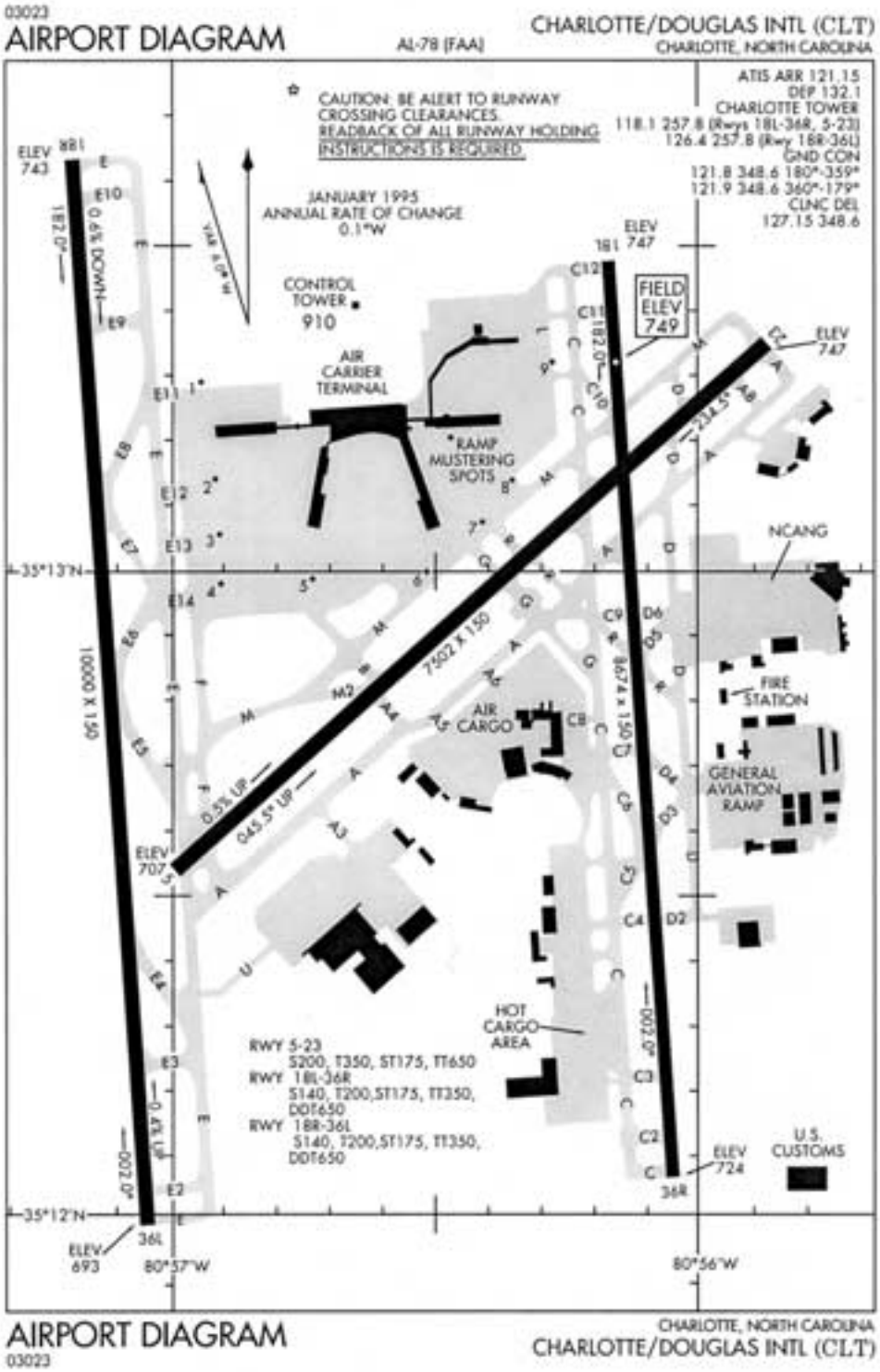
4.0.2 Runway Description

DESCRIPTION	RUNWAY			
	18R	**36L**	**18L**	**36R**
DIMENSIONS (FEET)	10,000 x 150	10,000 x 150	8,674 x 150	8,674 x 150
RUNWAY ELEVATION (FEET)	742	692	746	724
SURFACE	Concrete, Wired, Combed	Concrete, Wired, Combed	Asphalt, Concrete, Grooved	Asphalt, Concrete, Grooved
RVR EQUIPMENT	Touchdown, Midfield, Rollout	Touchdown, Midfield, Rollout	Touchdown, Midfield, Rollout	Touchdown, Midfield, Rollout
APPROACH LIGHTS	MALSR[18]	ALSF2[19]	None	ALSF2
TOUCHDOWN ZONE LIGHTS	None	Yes	None	Yes
RUNWAY EDGE LIGHTS	High Intensity	High Intensity	High Intensity	High Intensity
CENTERLINE LIGHTS	Yes	Yes	Yes	Yes
VISUAL SLOPE INDICATOR	4-Light PAPI[20] on Right	None	6-Box VASI[21] on Right	4-Light PAPI on Right

DESCRIPTION	RUNWAY	
	5	**23**
DIMENSIONS (FEET)	7,502 x 150	7,502 x 150
RUNWAY ELEVATION (FEET)	706	747
SURFACE	Asphalt, Concrete, Grooved	Asphalt, Concrete, Grooved
RVR EQUIPMENT	None	None
APPROACH LIGHTS	MALSR	None
TOUCHDOWN ZONE LIGHTS	None	None
RUNWAY EDGE LIGHTS	High Intensity	High Intensity
CENTERLINE LIGHTS	None	None
VISUAL SLOPE INDICATOR	4-Box VASI on Left	4-Box VASI on Right

[18] Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights.
[19] Approach Light System with Sequenced Flashing Lights.
[20] Precision Approach Path Indicator.
[21] Visual Approach Slope Indicator.

4.0.3 Airport Diagram



5.0 COMPANY INFORMATION

Air Midwest was founded in May 1965 in Wichita, Kansas, with a single Cessna airplane. The company became a wholly-owned subsidiary of Mesa Air Group in 1991.

At the time of the accident, the company had 743 employees and operated a fleet of 43 Beech 1900D 19-seat airplanes. The company operated under three code-share agreements: US Airways Express, America West Express, Mesa Airlines and Midwest Express, with a total of 389 daily departures to 72 different destinations.

6.0 FAA SURVEILLANCE

The POI overseeing the Air Midwest operating certificate has been employed by the Federal Aviation Administration for about seven years and has been a POI for about 3½ years. He has been assigned to the Air Midwest certificate since becoming a POI. The Air Midwest certificate is the only air carrier certificate he oversees as POI. Assisting him in overseeing the Air Midwest certificate are two assistant POIs and one Aircrew Program Manager (APM). Air Midwest's offices are located three blocks away from the Wichita FSDO, enabling him to accomplish surveillance of the company's day-to-day operation. He is type rated in the BE-1900 and has about 1,000 hours of BE-1900 pilot-in-command (PIC) time. He was also a check airman and examiner on the BE-1900.

In an interview conducted by the Operational Factors/Human Performance Group, the POI stated that he works closely with the "Region" to get his questions and concerns answered. FAA "Headquarters" also provides guidance on various concerns.

The POI divides the workload of the assistant POIs and the APM as follows: The APM works with the company's examiners and check airmen, and handles the training program. The assistant POIs look at manuals and the MEL, accomplish line checks on the airplane, and accomplish training and checking in the simulator. Sometimes an assistant or APM may accomplish required work activities (R-items) that are included in his annual work program. He stated that they are always looking at training. Special emphasis is also focused on record keeping, flight and duty time records, and manuals.

The POI normally works or interacts with the following company personnel: Director of Flight Operations, Director of Training, Director of Station Training, Manager of System Control (Head Dispatcher), and sometimes with the Director of Maintenance. He stated that he gets very good response from the Air Midwest company personnel.

He stated that he either approves or accepts manuals. He approves the company's training program, Minimum Equipment List (MEL), airplane Flight Operations Procedures Manual and the Station Manual. He accepts the Exit Row Seating Manual and most other manuals. He stated that he had approved all of the manuals that require approval during his tenure as POI, or at least revisions to those manuals.

He played a role in approving each of Air Midwest's Aircrew Program Designees (APDs). This entails reviewing their resume, looking at ISIS [Integrated Safety Information Subsystem] and the FAA record as a pilot, and tracing the candidate's record as a check airman with the company. He stated that he wants to get the best person for the job and he wants to be familiar with them. The APM is the person who normally has direct involvement with these people.

The POI stated that he is involved in the initial selection of the company check airmen but after that, the APM normally associates and interacts with them.

The POI stated that he has monitored ground school but he has not done so in a while. Usually the APM or one of his assistant POIs usually does that. Last year, one of the assistant POIs sat through an entire new-hire ground school. He had no negative comments about the training. An assistant POI usually monitors Dispatch training and the APM usually monitors captain upgrades and new-hire training.

The POI stated that he had monitored flight training in a simulator, but not all that much. The APM usually does that. As POI, he only monitors flight training on an as-needed basis or for an initial check airman or examiner that he wants to observe. He monitors the pass/fail ratio of pilots in training, the number of checks done in various categories, and the monthly ground school schedule. He also works closely with the Air Midwest training schedulers to determine when the FAA is going to observe check rides. Mr. West does not always tell the company which check rides are going to be observed.

He reviews SPAS [Safety Performance Analysis System] to check for safety concerns. If he finds something of interest he may even call the inspector who initiated the report for further information. According to the POI, SPAS is a system that shows areas of concern and ranks the level of concern as high or low, or "flags" it. With this system he is able to review areas of concern, find the date of an occurrence, and read the comments in the PTRS entry. Armed with this information, he is able to make changes to the airline's operation, as appropriate.

Mr. West stated that he ensures that training being performed is in compliance with the training program by actual surveillance of ground school, "sitting there with the training program in front of us;" through line checks, and by reviewing SPAS. SPAS may give an indication that someone is not following procedures. If he sees a trend, he would take another look at the training program.

He stated that oversight of Air Midwest weight and balance procedures is accomplished on en route inspections. Part of this inspection is to check the cargo bin, count the number of bags, look at the size of the bags, and compare this to the loading sheet. They also look at weight scales at the stations. Geographic inspectors are also asked to help by going to stations where the Wichita FSDO cannot always get to. The Wichita FSDO publishes a newsletter to advise Geographic Program Managers and Aviation Safety Inspectors with oversight responsibilities of Air Midwest, Inc., of policies, procedures, or significant changes that may impact surveillance activities.

Kenneth L. Egge
Chairman, Operational Factors/Human Performance Group

E. LIST OF ATTACHMENTS

Attachment 1