



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

January 9, 2013

WEIGHT AND BALANCE

WPR12FA123

This document contains 4 embedded photos.

A. ACCIDENT

Location: Brockton, Montana
Date: March 5, 2012
Aircraft: Bellanca 7GCBC, Registration Number: N5542K, Serial #: 1030-78
NTSB IIC: Jeff Rich

B. EXAMINATION PARTICIPANTS:

Samantha Link
Aviation Accident Investigator Trainee
National Transportation Safety Board
505 South 336th Street, Suite 540
Federal Way, WA 98003

C. SUMMARY

On March 5, 2012, About 1556 Mountain standard time, a Bellanca 7GCBC, N5542K, impacted terrain about 12 miles southeast of Brockton, Montana. The private pilot was fatally injured and the one passenger received serious injuries. The airplane was substantially damaged. The airplane was registered to and operated by the pilot. Visual meteorological conditions prevailed and no flight plan was filed for the local personal flight. The pilot departed Sidney-Richland Municipal Airport (SDY), Sidney, Montana; the departure time is unknown.

D. DETAILS OF THE INVESTIGATION

During the investigation, the airplane's approximate weight and balance at the time of the accident was calculated. For the calculations, the approximate pilot and passenger weights given by the witnesses, approximate weight of baggage as determined on scene, and the approximate amount of fuel at the time of recovery were used.

Also included in this document are excerpts used from the airplane's weight and balance packet issued in 1982, and the 1978 series Bellanca Citabria 7GCBC Pilot Operating Handbook.

1.0 20 Gallons of Fuel and 15 Pounds of Baggage

	WEIGHT (pounds)	MOMENT (inch pounds)
PILOT	350	4200
PASSENGER	160	6900
FUEL	120	2900
BAGGAGE	15	1000
AIRPLANE EMPTY WEIGHT	1189.49	15047.37
TOTAL	1834.49	30047.37

Center of Gravity: $\frac{30047.37}{1834.49} = 16.38$ inches

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2.0 Airplane Weight and Balance

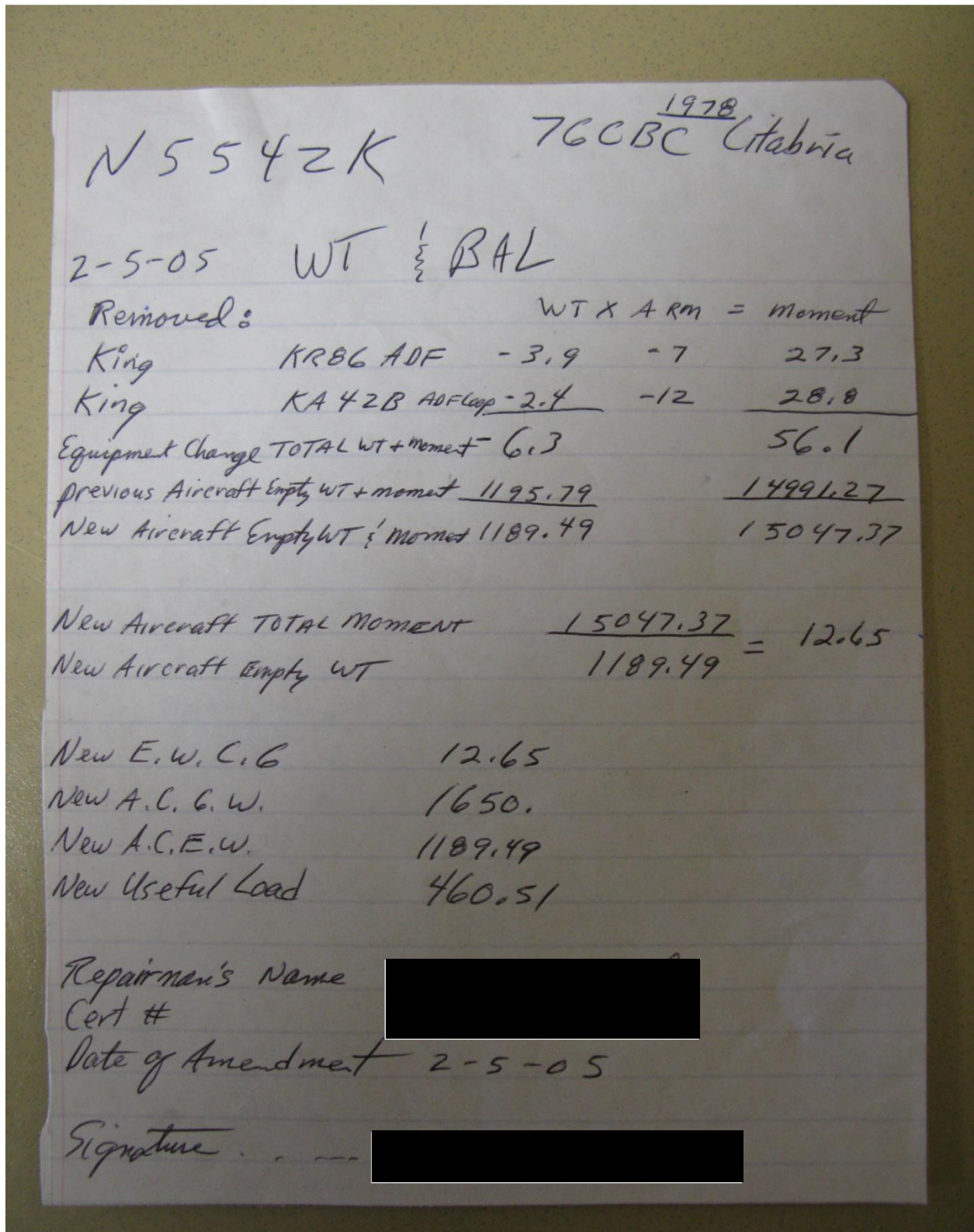


Figure 1: Weight and Balance Document Found within Aircraft Records

3.0 Equipment List and Loading

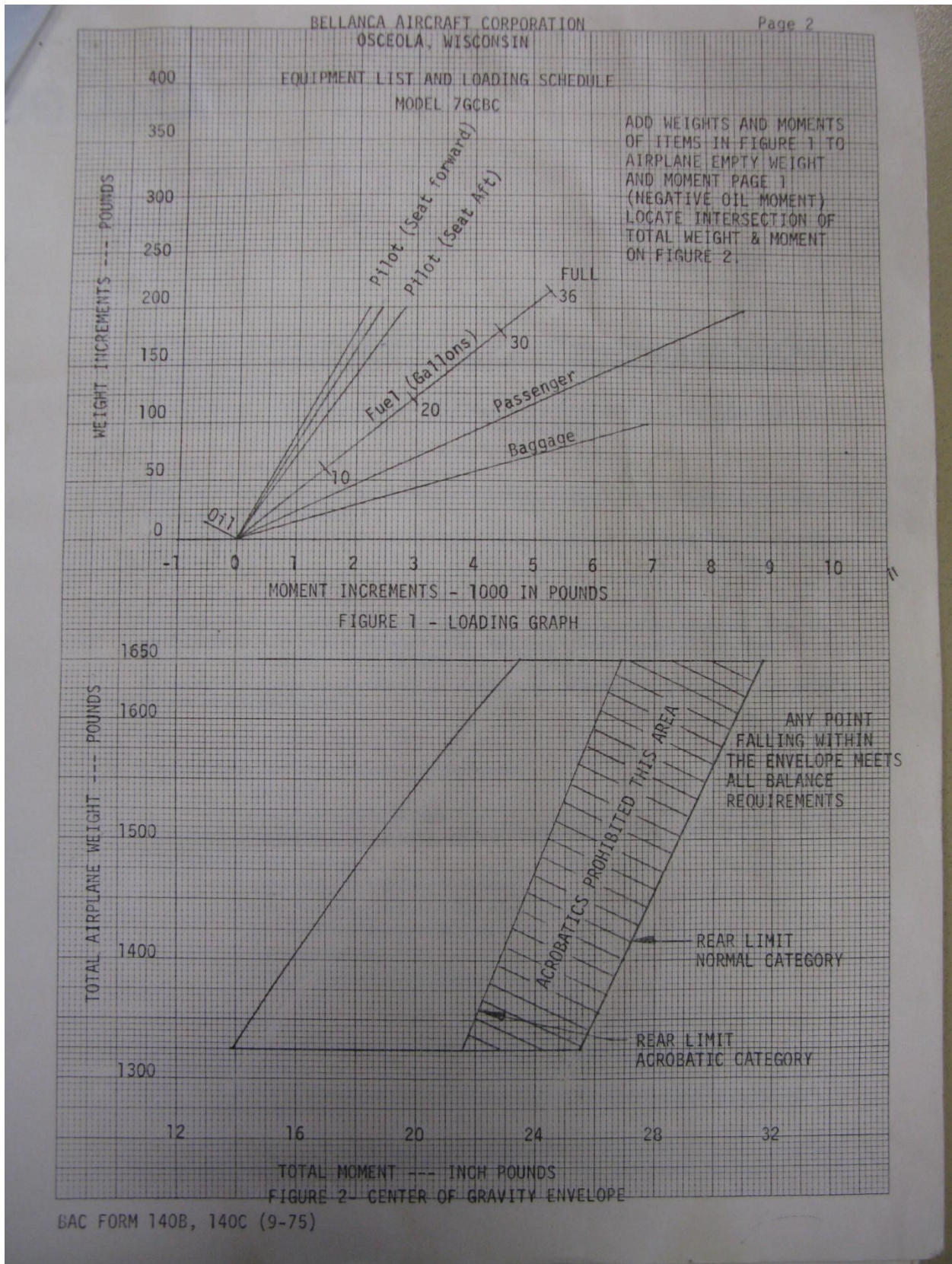


Figure 2: Equipment list and Loading from an Airplane Weight and Balance packet that was issued in 1982

4.0 Center of Gravity Envelope

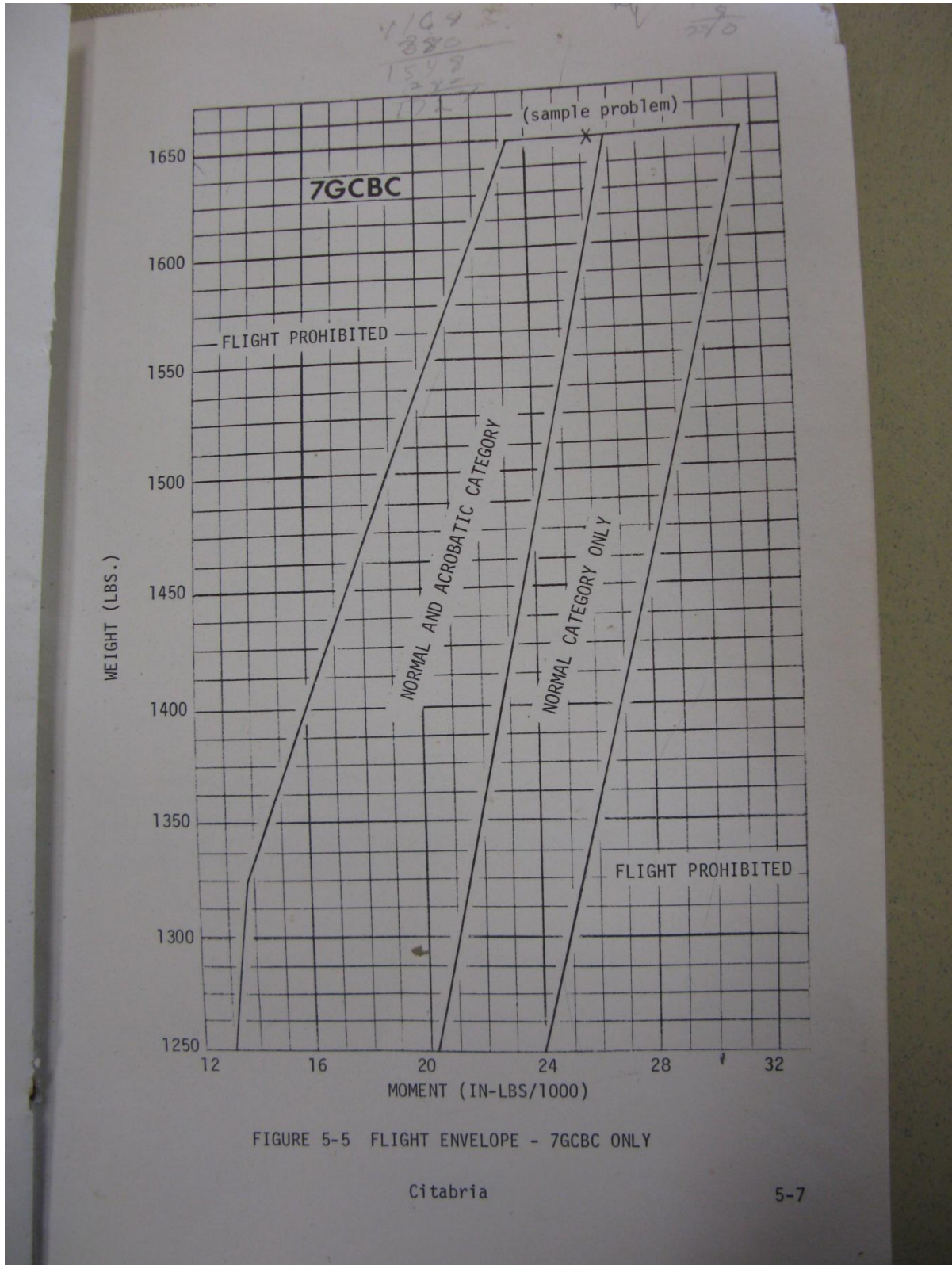


Figure 3: Flight Envelope from the Bellanca Citabria 7GCBC Pilot Operating Handbook

5.0 Center of Gravity Limits

WEIGHT AND BALANCE LIMITS			
Aircraft Model and Weight Center of Gravity Range			
		Normal Category	Acrobatic Category
7ECA	1650 lbs maximum	14.2"-19.2"	14.2"-17.3"
	1325 lbs or less	10.5"-19.2"	10.5"-17.3"
7CAA,	1650 lbs maximum	10.5"-18.2"	10.5"-16.0"
	1325 lbs or less	10.5"-18.2"	10.5"-16.0"
7GCBC	1650 lbs maximum	14.2"-19.2"	14.2"-16.3"
	1325 lbs or less	10.5"-19.2"	10.5"-16.3"

NOTE

All measurements are aft of the datum line which is the wing leading edge. Center of gravity limits between 1325 lbs. and 1650 lbs. is a straight line variation between these points. See Section V for the flight envelope and loading instructions.

Citabria 1-3

Figure 4: Center of Gravity Range

END.

Submitted by: Samantha Link