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Date: 5/20/2025

Subject: ERA25FA201, Weight and Balance Review

Contact: Kris Wetherell, Air Safety Investigator, Piper Aircraft.

At the request of the IIC Mr. Wetherell performed weight and balance calculations using estimated weights of the pilot and baggage onboard the aircraft (Figure 1). Actual baggage weights could not be determined due to postaccident fire. A weight of 40 lbs. was placed in the forward baggage compartment to account for the oil and bag of dogfood which was found on the runway and likely exited the forward baggage compartment of the accident airplane. 100 lbs. was placed in the aft baggage compartment as baggage was located in this area but experienced thermal damage, 100 lbs. is the maximum for the aft baggage compartment. 100 lbs. was placed in 2nd and 3rd seating rows respectively to account for baggage, "E-bikes", and dogfood found in this area. 78 gallons worth of fuel was considered based on the pilot's spouse reporting that they had flown about an hour since the airplane was last fully refueled. The resulting weight and balance was within the airplane's flight envelope (marked on figure 2 in red) with a takeoff weight of 3166 lbs. and a center of gravity of 91.09 inches aft of datum.

The weight and balance was then re-run with the 40 lbs. placed in the nose baggage removed. The resulting weight and balance was still within the airplane's flight envelope (marked on figure 2 in blue) with a takeoff weight of 3162 lbs. and a center of gravity of 91.72 inches aft of datum.

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32RT-300, LANCE II

	Weight (Lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Basic Empty Weight	2150	83.5	179,525
Pilot and Front Passenger	200	85.5	17,100
Passengers (Center Seats) (Forward Facing)		118.1	
Passengers (Center Seats) (Aft Facing) (Optional)	100	119.1	11,910
Passengers (Rear Seats)	100	157.6	15,760
Passenger (Jump Seat) (Optional)		118.1	
Fuel (94 Gallon Maximum) 78 GAL	476	93.6	44,553.6
Baggage (Forward) (100 Lb. Limit)	40	42.0	1,680.0
Baggage (Aft) (100 Lb. Limit)	100	178.7	17,870
Moment due to Retraction of Landing Gear			819
Total Loaded Airplane	3166	91.09"	288,398.6

Totals must be within approved weight and C.G. limits. It is the responsibility of the airplane owner and the pilot to insure that the airplane is loaded properly. The Basic Empty Weight C.G. is noted on the Weight and Balance Data Form (Figure 6-5). If the airplane has been altered, refer to the Weight and Balance Record for this information.

WEIGHT AND BALANCE LOADING FORM

Figure 6-11

$$78 \text{ GAL} \times 6.1 \text{ lb/GAL} = 476 \text{ (ROUNDED)}$$

$$100 \text{ lbs BAGGAGE IN EACH ROW (3+4) (5+6)}$$

REPORT: VB-890
6-10

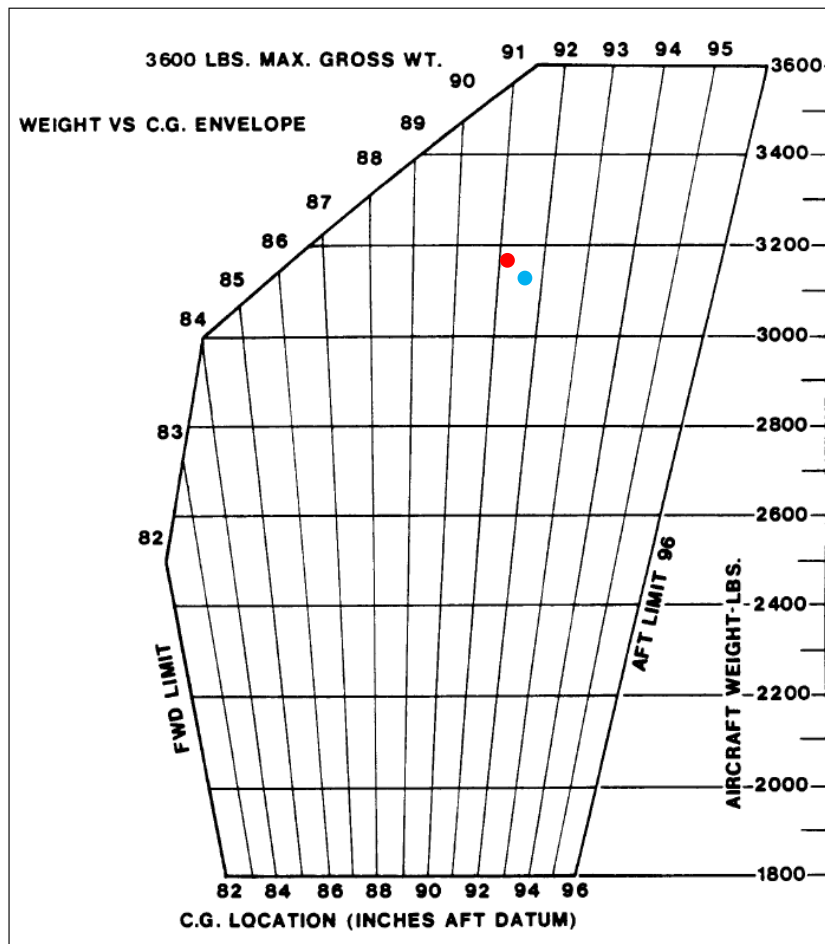
ISSUED: JANUARY 18, 1978

$$\begin{array}{r}
 3166 \\
 - 40 \text{ NASE} \\
 \hline
 3126 \text{ lbs.}
 \end{array}
 \quad
 \begin{array}{r}
 288,398.6 \\
 - 1,680.0 \text{ NASE BAGGAGE} \\
 \hline
 286,718.6 \text{ MOM}
 \end{array}
 = 91.72" \text{ WITHOUT 40lb NASE BAGGAGE WT.}$$

Figure 1: Estimated accident weight and balance calculation courtesy of Piper Aircraft.

SECTION 6
WEIGHT AND BALANCE

PIPER AIRCRAFT CORPORATION
PA-32RT-300, LANCE II



Moment change due to retracting landing gear = +819 IN.-LBS.

C.G. RANGE AND WEIGHT

Figure 6-15

REPORT: VB-890
6-12

ISSUED: JANUARY 18, 1978
REVISED: MARCH 27, 1978

Figure 2: PA-32RT-300 weight vs center of gravity envelope chart courtesy of Piper Aircraft