

Weight and Balance Table

N3552E Cessna 172N

LOADING		WEIGHT lbs	MOMENT lbs-inch/1000
1	Basic Empty Weight Use data from the plane's current weight and balance sheet that includes unusable fuel and full oil	1498.17	58672.355
2	Useable Fuel (6lbs/Gallon) Standard Tanks 40 Gal. Maximum		
	Reduced Fuel as limited by maximum weight		
3	Pilot and Front Passenger [Stations 34-46]		
4	Rear Passenger		
5	Baggage and Equipment <u>Area 1</u> [cabin stations 82-108] 120 lbs Max (combined weight for areas 1 and 2 is 120lbs)		
6	Baggage and Equipment <u>Area 2</u> [cabin stations 108-142] 50 lbs Max (combined weight for areas 1 and 2 is 120lbs)		
7	Ramp Weight and Moment		
8	Fuel allowance for engine start, taxi, and runup		
9	TAKEOFF WEIGHT AND MOMENT (subtract 8 from 7)		
10	Locate this point on the Center of Gravity Moment Envelope. If this point falls within the envelope, the loading is acceptable.		
*The maximum allowable combined weight capacity for baggage areas 1 and 2 is 120lbs			

Student Name

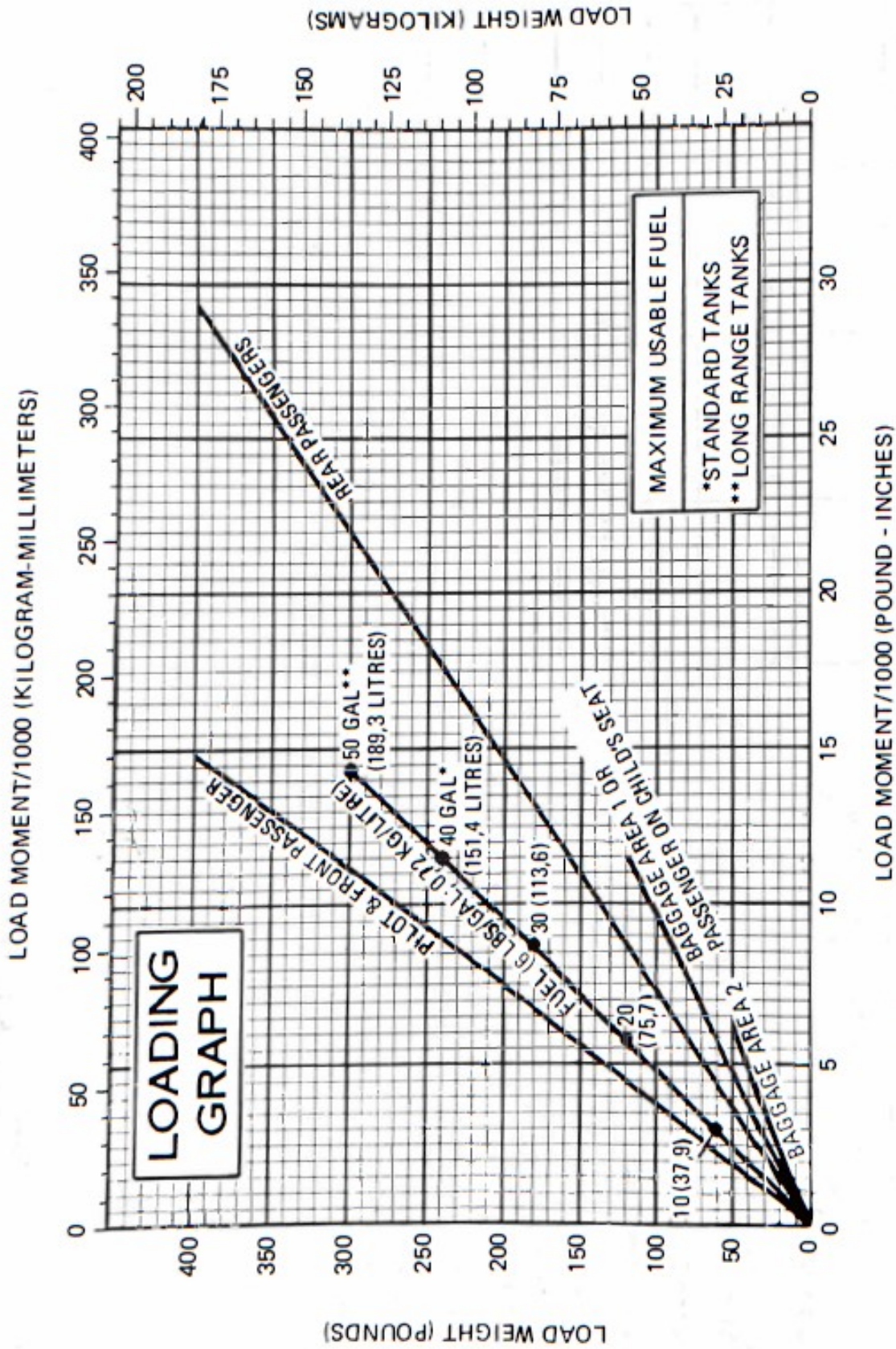
Flight Date and Time

Instructor Name

Weight and Balance Instructions

N3552E Cessna 172N

1. The basic empty weight and moment provided are from the current weight and balance record.
2. Enter the weight of fuel for your flight based on gallons of fuel in the aircraft. Using the loading graph (Figure 6.6), find the weight of fuel value on the left side of the graph then follow the graph line across to the right until it intersects with the fuel line. At the intersection of the fuel weight value and fuel chart line, follow/draw a line on the graph straight down to find the fuel moment value. Multiply this number by 1000 to determine the moment (e.g. 147 intersects at $6.2 \times 1000 = 6200$). Enter the weight and moment values as for useable fuel in row 2. Enter the fuel weight (e.g. 147 lbs) in column 1 and the moment (e.g. 6200) in column 2. *Reduced fuel is used only when overweight. Speak to your instructor about this.*
3. Using the loading graph (Figure 6.6), find the combined pilot and front passenger weight value on the left side of the graph then follow the graph line across to the right until it intersects with the pilot & front passenger. At the intersection of the pilot & front passenger weight value and pilot & front passenger chart line, follow/draw a line on the graph straight down to find the pilot & front passenger moment value. Multiply this number by 1000 to determine the moment (e.g. 270 intersects at $11 \times 1000 = 11000$). Enter the weight and moment values for pilot and front passenger in row 3. Enter the pilot and front passenger weight (e.g. 270 lbs) in column 1 and the moment (e.g. 11000) in column 2.
4. Using the loading graph (Figure 6.6), find the rear passengers weight value on the left side of the graph then follow the graph line across to the right until it intersects with the rear passengers line. At the intersection of the rear passengers weight value and rear passengers chart line, follow/draw a line on the graph straight down to find the rear passengers moment value. Multiply this number by 1000 to determine the moment (e.g. 270 intersects at $21 \times 1000 = 21000$). Enter the weight and moment values for rear passengers in row 4. Enter the rear passengers weight (e.g. 270 lbs) in column 1 and the moment (e.g. 21000) in column 2.
5. Using the loading graph (Figure 6.6), find the baggage Area 1 weight value on the left side of the graph then follow the graph line across to the right until it intersects with the baggage in Area 1 line. At the intersection of the baggage in Area 1 weight value and baggage in Area 1 chart line, follow/draw a line on the graph straight down to find the baggage in Area 1 moment value. Multiply this number by 1000 to determine the moment (e.g. 50 intersects at $4.2 \times 1000 = 4200$). Enter the weight and moment values for baggage in Area 1 in row 5. Enter the baggage in Area 1 weight (e.g. 50 lbs) in column 1 and the moment (e.g. 4200) in column 2.
6. Using the loading graph (Figure 6.6), find the baggage Area 2 weight value on the left side of the graph then follow the graph line across to the right until it intersects with the baggage in Area 2 line. At the intersection of the baggage in Area 2 weight value and baggage in Area 2 chart line, follow/draw a line on the graph straight down to find the baggage in Area 2 moment value. Multiply this number by 1000 to determine the moment (e.g. 25 intersects at $3.5 \times 1000 = 3500$). Enter the weight and moment values for baggage in Area 2 in row 6. Enter the baggage in Area 2 weight (e.g. 25 lbs) in column 1 and the moment (e.g. 3500) in column 2. Enter the weight of the baggage to be carried in Area 2.
7. Calculate the total of all weights in rows 1 to 6, column 1 and enter this value into the weight column in line 7 column 1 (e.g. 2260), then calculate the total of all moments in column 2 (e.g. 104,572) and enter this value into the moment column in Line 7; Ramp Weight and Moment. Total weight for takeoff must not exceed 2300 lbs.
8. Determine the weight of fuel that will be used for engine start, taxi, and runup. Enter the weight value in the weight column. Calculate the moment as you did in 2. table calculation for fuel and enter the moment value in the moment column for Line 8.
9. Calculate the total take-off weight by subtracting the value in line 8 from the value in line 7 (weight). Calculate the total take-off moment by subtracting the value in line 8 from the value in line 7 (moment). Using the graph (Figure 6.7), plot the weight and moment to ensure that they intersect within the center of gravity moment envelope. Enter these amounts in Row 9 columns 1 and 2.
10. Calculate the Center of Gravity (CofG) by dividing the total moment by the takeoff weight in Line 9. Enter this value into Line 10 on your table. This is the center of gravity for your departure. Using the Center of Gravity Limits Graph (Figure 6.8), plot the takeoff weight and CofG to ensure that your center of gravity limits are within the envelope.



NOTE: Line representing adjustable seats shows the pilot or passenger center of gravity on adjustable seats positioned for an average occupant. Refer to the Loading Arrangements diagram for forward and aft limits of occupant C.G. range.

Figure 6.6

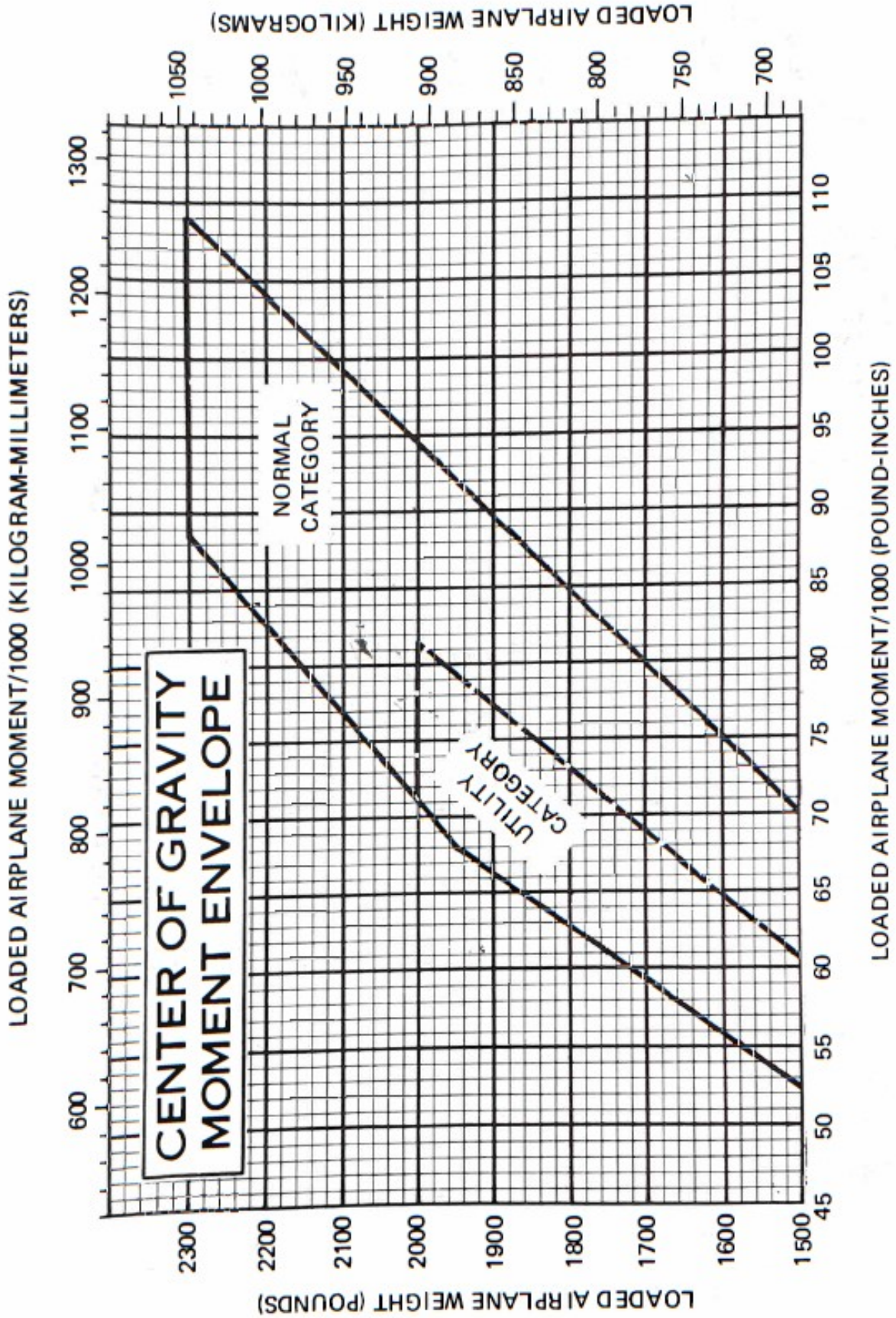


Figure 6.7

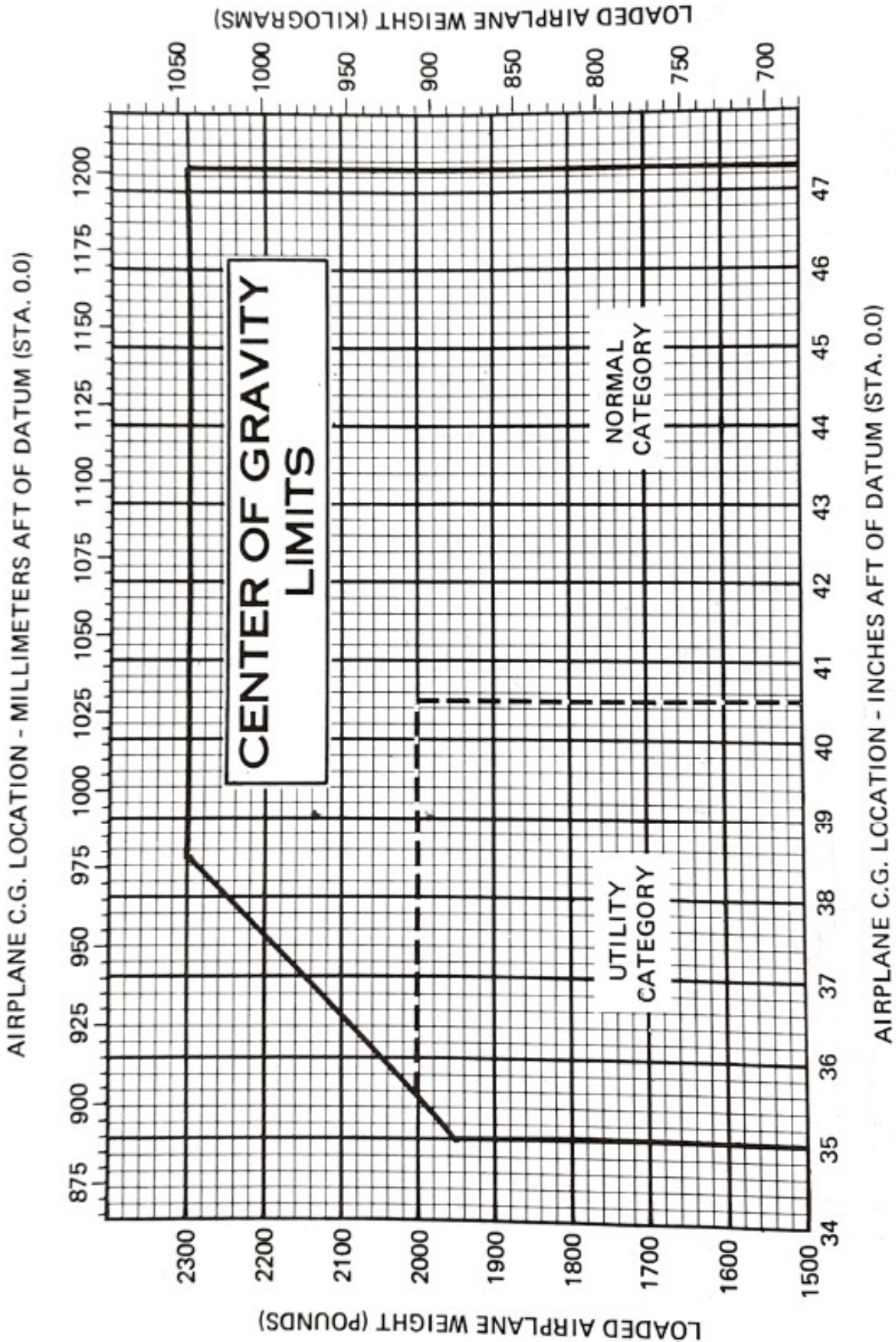


Figure 6.8