Weight and Balance Table **N64056 Cessna 172P**

	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	1489.76	57668.61
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 Area 1 [cabin stations 82-108] 120 lbs Max (combined weight for areas 1 and 2 is 120lbs)		
6	Baggage and Equipment Area 2 [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 and since 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 **N64056 Cessna 172P**

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. 240 intersects at 11.5 x 1000 = 11500). Enter the weight and moment values as for useable fuel in row 2. Enter the fuel weight (e.g. 240 lbs) in column 1 and the moment (e.g. 11500) 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. 340 intersects at 12.6 x 1000 = 12600). Enter the weight and moment values for pilot and front passenger in row 3. Enter the pilot and front passenger weight (e.g. 340 lbs) in column 1 and the moment (e.g. 12600) 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. 340 intersects at 24.8 x 1000 = 24800). Enter the weight and moment values for rear passengers in row 4. Enter the rear passengers weight (e.g. 340 lbs) in column 1 and the moment (e.g. 24800) 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. 20 intersects at 1.9 x 1000 = 1900). Enter the weight and moment values for baggage in Area 1 in row 5. Enter the baggage in Area 1 weight (e.g. 20 lbs) in column 1 and the moment (e.g. 1900) 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 1 moment value. Multiply this number by 1000 to determine the moment (e.g. 0 intersects at 0 x 1000 = 0). Enter the weight and moment values for baggage in Area 2 in row 6. Enter the baggage in Area 2 weight (e.g. 0 lbs) in column 1 and the moment (e.g. 0) 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. 2407), then calculate the total of all moments in column 2 (e.g. 108,100) and enter this value into the moment column in Line 7; Ramp Weight and Moment. Total weight for takeoff must not exceed 2407 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 1 (e.g. -7) and the moment in the moment column 2 (e.g. -8). 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 (e.g. 2400) and 2 (e.g. 107.8).
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.

WEIGHT AND BALANCE/EQUIPMENT LIST REVISION

NAME: ANGEL AVIATION
AIRCRAFT MAKE/TYPE:
REGISTRATION #: N64056

DATE: 3-1-16
MODEL #: C-172P
SERIAL #: 17275512

PREVIOUS DATE: WEIGHT: ARM: MOMENT:

	EQUIPMENT LIST	IN	OUT	WEIGHT	ARM	MOMENT
1	(P/N) 149-NL/ec (S/N) FNE-431504 (Desc.) SKY-TEC STARTER	X		9.3	-31	-288.3
2	PRESTOLITE MHB-4016 9P000038		X	16.44	-31	-509.64
3						
4						

AIRCRAFT EMPTY WEIGHT: 1489.76
ARM: 39.71
MOMENT: 57668.61
GROSS WEIGHT: 2407.0
USEFUL LOAD: 917.24

SIGNATURE
A&P 2788733
AUTHORIZATION

NOTE: Weight and balance must be completed and attached to pilot's operating handbook.

Sky-Tec Serial Numbers Beginning w/

Lycoming Starters

(x)N - 9.3 lbs.
(x)NE - 9.3 lbs.
(x)NER - 9.3 lbs.
(x)(y)H - 10.2 lbs.
(x)(x)M - 8.5 lbs.
(x)(x)C - 8.9 lbs.
(x)(x)E - 8.9 lbs.
(x)(x)L - 8.2 lbs.
(x)(x)P - 8.2 lbs.
(x)(x)T - 6.5 lbs.

Continental Starters

2C - 9.2 lbs.
2CC - 8.9 lbs.
2CCR - 8.9 lbs.
(x)C3 - 6.5 lbs.
(x)C4 - 7.6 lbs.
(x)C5 - 9.4 lbs.

Franklin Starters

(x)F - 9.2 lbs.

FAA - PMA

This tag certifies that Sky-Tec Model No. 149-NL/ec
Serial No. FNE-431504 was manufactured new on 26 Oct 2015
by Sky-Tec under the authority of FAA-PMA No. PQ0852SW
Supplement No. 7 in accordance with Sky-Tec's
FAA-Approved Quality System (14CFR Part 21, Subpart K).
This article has been determined to be airworthy.
For installation eligibility see www.skytecair.com/eligibility.htm
Installed on N64056 by ______
(Aircraft) (Mechanic)

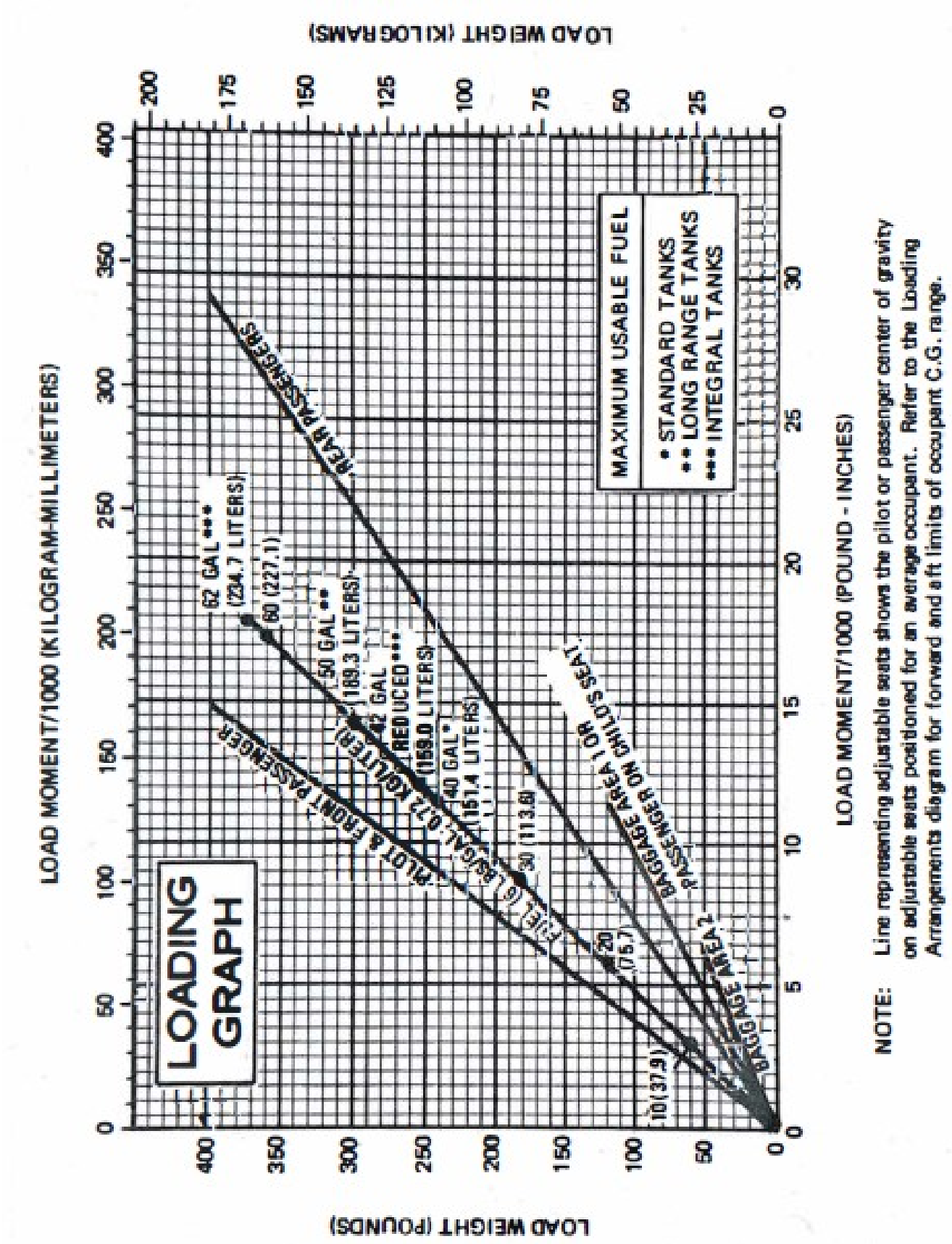
LOADING GRAPH
LOAD MOMENT/1000 (KILOGRAM-MILLIMETERS)
LOAD WEIGHT (KILOGRAMS)
LOAD MOMENT/1000 (POUND - INCHES)
LOAD WEIGHT (POUNDS)
MAXIMUM USABLE FUEL
* STANDARD TANKS
** LONG RANGE TANKS
*** INTEGRAL TANKS
REAR PASSENGERS
62 GAL *** (234.7 LITERS)
50 GAL ** (189.3 LITERS)
42 GAL REDUCED *** (159.0 LITERS)
40 GAL * (151.4 LITERS)
PILOT & FRONT PASSENGER
PILOT & PASSENGER OR CHILD'S SEAT
BAGGAGE AREA 1 OR PASSENGER
BAGGAGE AREA 2
FUEL (6 LBS/GAL. 0.72 KG/LITER)
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

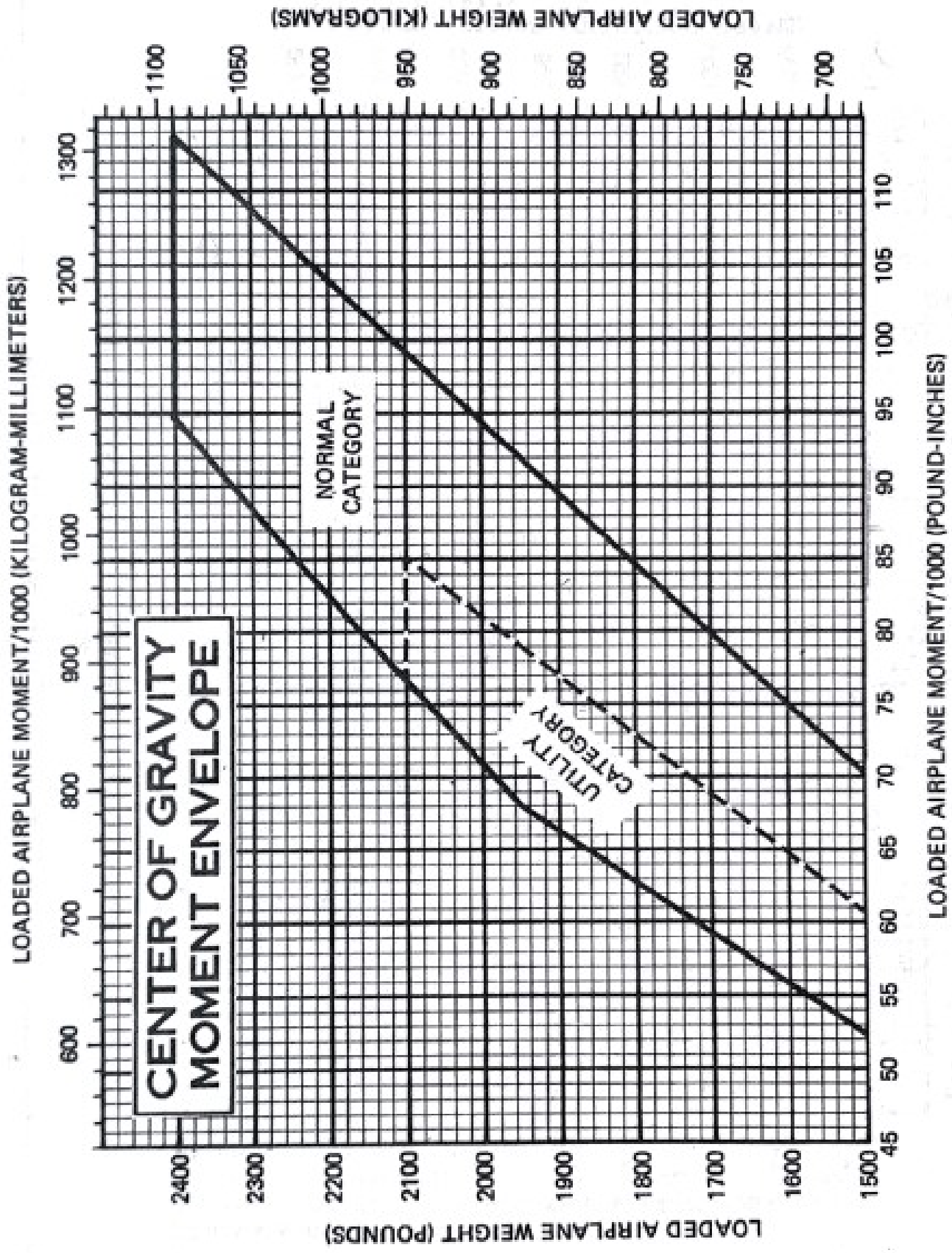
CENTER OF GRAVITY
MOMENT ENVELOPE
NORMAL CATEGORY
UTILITY CATEGORY
LOADED AIRPLANE WEIGHT (KILOGRAMS)
LOADED AIRPLANE WEIGHT (POUNDS)
LOADED AIRPLANE MOMENT/1000 (KILOGRAM-MILLIMETERS)
LOADED AIRPLANE MOMENT/1000 (POUND-INCHES)
1100
1050
1000
950
900
850
800
750
700
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1300
1200
1100
1000
900
800
700
600
110
105
100
95
90
85
80
75
70
65
60
55
50
45

Figure 6.7

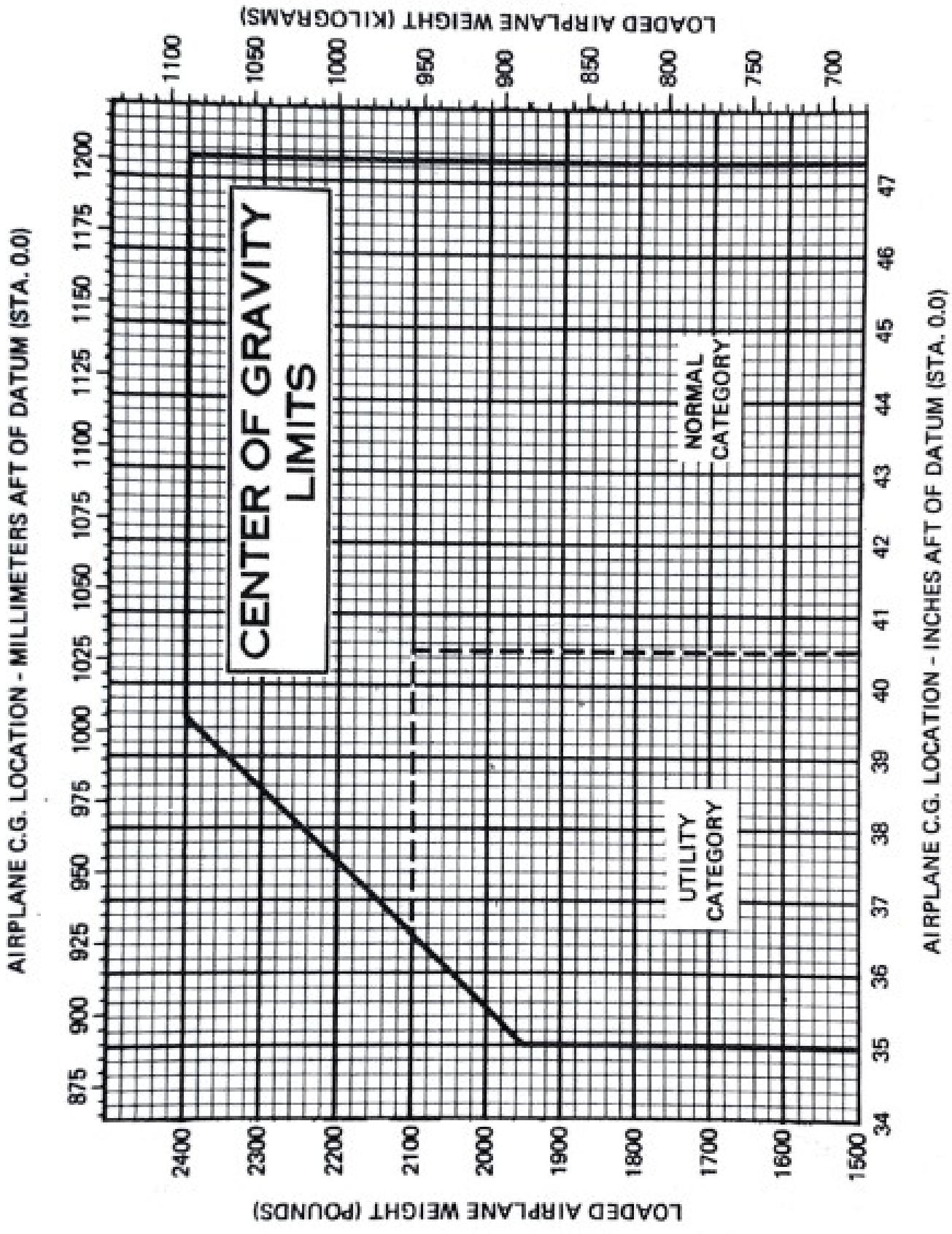
LOADED AIRPLANE WEIGHT (KILOGRAMS)
1100
1050
1000
950
900
850
800
750
700
AIRPLANE C.G. LOCATION - MILLIMETERS AFT OF DATUM (STA. 0.0)
1200
1175
1150
1125
1100
1075
1050
1025
1000
975
950
925
900
875
CENTER OF GRAVITY LIMITS
NORMAL CATEGORY
UTILITY CATEGORY
AIRPLANE C.G. LOCATION - INCHES AFT OF DATUM (STA. 0.0)
47
46
45
44
43
42
41
40
39
38
37
36
35
34
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
LOADED AIRPLANE WEIGHT (POUNDS)

Figure 6.8