

SECTION 2 LIMITATIONS

PIPER AIRCRAFT CORPORATION PA-38-112, TOMAHAWK

(d) Fuel Pressure	
Green Arc (Normal Operating Range)	.5 PSI to 8 PSI
Red Line (Minimum)	.5 PSI
Red Line (Maximum)	8 PSI

2.11 WEIGHT LIMITS

	Normal	Utility
(a) Maximum Weight	1670 lbs.	1670 lbs.
(b) Maximum Baggage at Fuselage Station 115.0	100 lbs.	100 lbs.*

CAUTION

Baggage compartment loading should not exceed 25 lbs. per square foot.

2.13 CENTER OF GRAVITY LIMITS

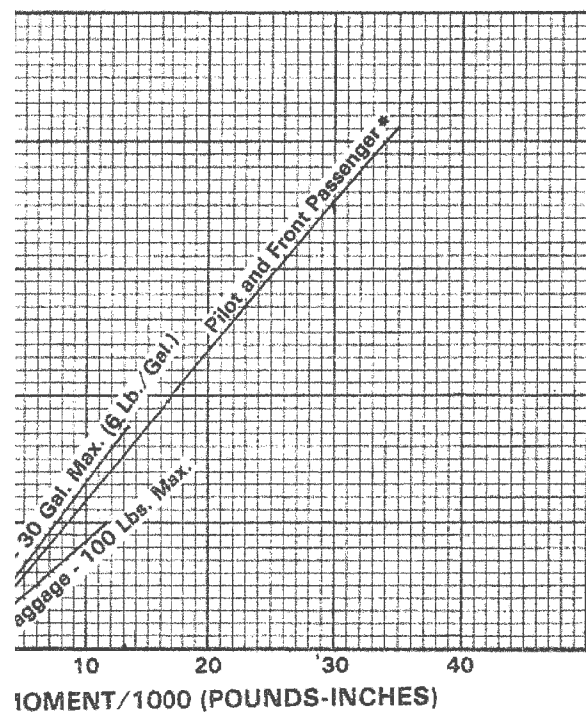
(a) Normal Category

Weight Pounds	Forward Limit Inches Aft of Datum	Rearward Limit Inches Aft of Datum
1670	73.5	78.5
1277	72.4	78.5

(b) Utility Category

Weight Pounds	Forward Limit Inches Aft of Datum	Rearward Limit Inches Aft of Datum
1670	73.5	78.5
1277	72.4	78.5

*No baggage allowed for spins.



As shown with the seats in the fourth notch from the most forward position. If C.G. falls near the forward or aft limit occupant seat positions and moments should be calculated by multiplying passenger weight by appropriate arm aft datum (see Figure 6-14) determined by the loading graph.

LOADING GRAPH
Figure 6-15

6.7 WEIGHT AND BALANCE DETERMINATION FOR FLIGHT

- Add the weight of all items to be loaded to the basic empty weight.
- Use the Loading Graph (Figure 6-15) to determine the moment of all items to be carried in the airplane.
- Add the moment of all items to be loaded to the basic empty weight moment.
- Divide the total moment by the total weight to determine the C.G. location.
- By using the figures of item (a) and item (d) (above), locate a point on the C.G. range and weight graph (Figure 6-17). If the point falls within the C.G. envelope, the loading meets the weight and balance requirements.

	Weight (Lbs.)	Arm Aft Datum (Inches)	Moment (Lb-In.)
Basic Empty Weight	1169.0	73.2	85570
Pilot and Passenger**	340.0	85.5	29070
Fuel (30 Gallon Maximum)	61.0	75.4	4599
Baggage (100 Lbs. Maximum)*	100.0	115.0	11500
Total Loaded Airplane	1670.0	78.3	130739

The center of gravity (C.G.) of this sample loading problem is at 78.3 inches aft of the datum line. Locate this point (78.3) on the C.G. range and weight graph. Since this point falls within the weight - C.G. envelope, sample loading meets the weight and balance requirements.

IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY.

*No baggage allowed for spins.

**Occupant C.G. is shown with the seats in the fourth notch from the most forward position. See Figure 6-14 for the seat position and corresponding arm aft datum.

SAMPLE LOADING PROBLEM (NORMAL CATEGORY)
Figure 6-11

	Weight (Lbs.)	Arm Aft Datum (Inches)	Moment (Lbs.-In.)
Basic Empty Weight			
Pilot and Passenger**		85.5	
Fuel (30 Gallon Maximum)		75.4	
Baggage (100 Lbs. Maximum)*		115.0	
Total Loaded Airplane			

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 6-7). If the airplane has been altered, refer to the Weight and Balance Record for this information.

*No baggage allowed for spins.

**Occupant C.G. is shown with the seats in the fourth notch from the most forward position. For other seat locations and corresponding arm aft datum see Figure 6-14.

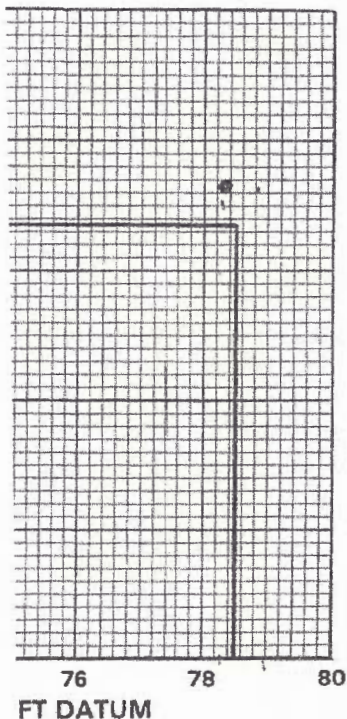
WEIGHT AND BALANCE LOADING FORM

Figure 6-13

Seat Position	Arm Aft Datum (Inches)
FWD 1	80.8
2	82.3
3	83.9
4	85.5
5	87.5
AFT 6	89.5

SEAT POSITION AND CORRESPONDING ARM AFT DATUM

Figure 6-14



WEIGHT
7

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REPORT: 2126
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QUALITY CONTROL PROCEDURES MANUAL

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PENINSULAIR LIMITED WEIGHT AND BALANCE REPORT

Registration: C-67110 Model: PA-38-112 Date: MAR 9 / 03
 Prepared By: F. Fikow Serial No: 39-7411002 FAA Spec _____
 Datum: 66.15 inches ahead of main L.F. or Type Approval# _____
 Leveling Means: upper tail cone Owner: HAAS AERIAL

Centre of Gravity Computation

Nose wheel WEIGHT WITH OIL AND CONSIDER FUEL Tail Wheel
 $Cof G = D - (F * L) / W = 75"$ $C of G = D + (R * L) / W$

D = Horizontal distance from Datum to C/L of main wheels. 90.0"
 L = Horizontal distance from C/L of nose wheel or tail wheel to C/L of main wheels 57"
 F = Weight of nose wheel 321.65
 R = Weight of tail wheel N/A
 W = Total weight of aircraft 1223.05

Weight Computation

WEIGHT POINT	GROSS WEIGHT	ARM	Moment
		TARE WEIGHT	NET WEIGHT
Left Scale	451.72	90.0	40654.8
Right Scale	456.18	90.0	40516.2
Front Scale	321.65	33.0	F 10614.45
Rear Scale			R 10614.45

Weight and Balance Calculations

	Weight (lb)	Arm (in)	Moment
Aircraft	1223.5	75.0	91762.5
Pilot & Bag	207.0	85.5	17760.6
Baggage	89.0	115.0	10235.0
Fuel (30 gal)	180.0	75.4	13572.0
Total	1699.5	78.45	133330.1