6.7 WEIGHT AND BALANCE DETERMINATION FOR FLIGHT

(a) Add the weight of all items to be loaded to the basic empty weight.

(b) Use the Loading Graph (Figure 6-13) to determine the moment of all items to be carried in the airplane.

(c) Add the moment of all items to be loaded to the basic empty weight moment.

(d) Divide the total moment by the total weight to determine the C.G. location.

(e) By using the figures of item (a) and item (d) (above), locate a point on the C.G. range and weight graph (Figure 6-15). If the point falls within the C.G. envelope, the loading meets the weight and balance requirements.

1543.3 88.27" 13

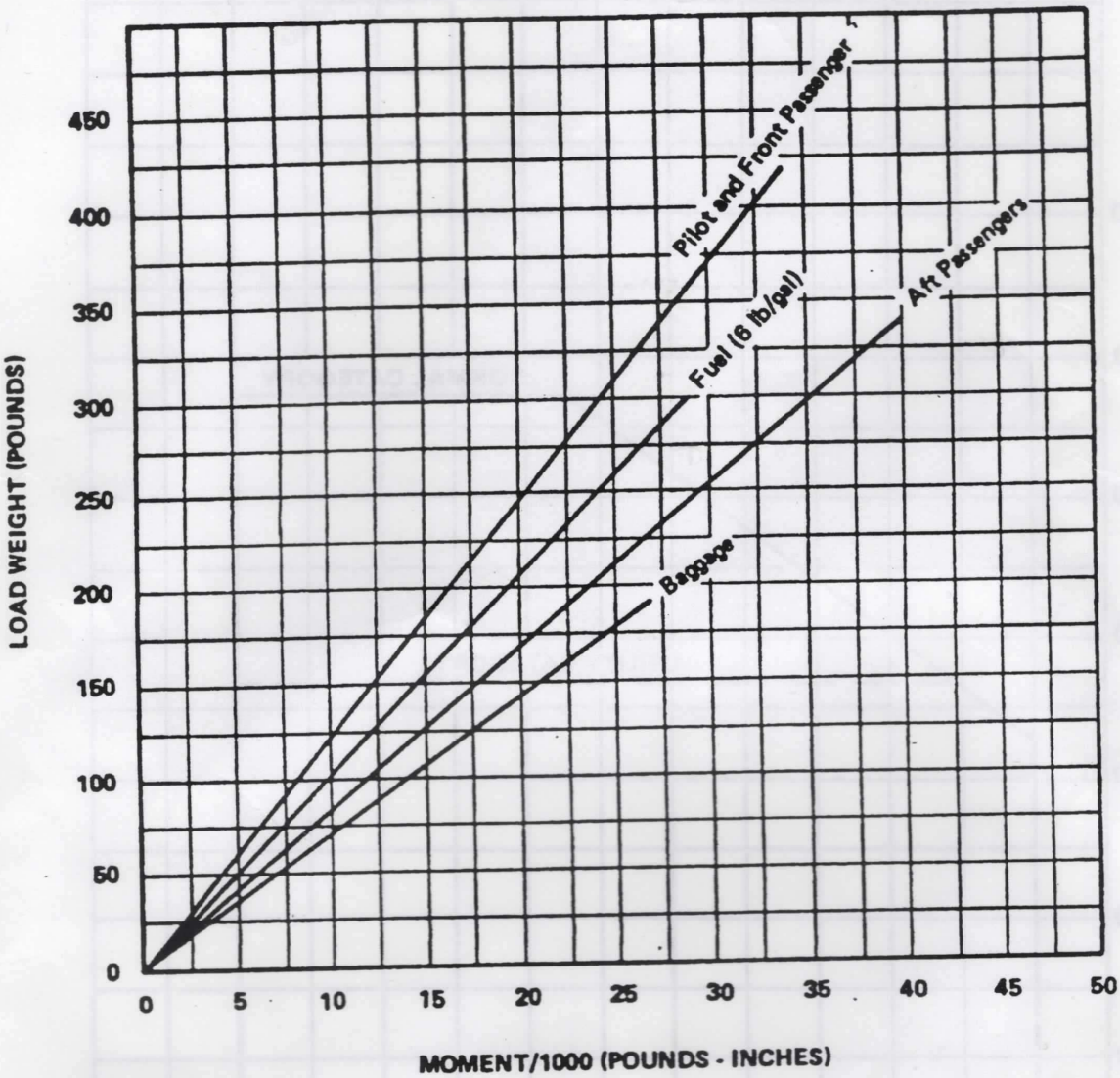
	Weight (Lbs)	Arm Aft Datum (Inches)	Moment (In-Lbs)
Basic Empty Weight 695 kgs	1529	88.8	
Pilot and Front Passenger	340.0	80.5	27370
Passengers (Rear Seats)*	340.0	118.1	40154
Fuel (48 Gallon Maximum)		95.0	
Baggage*		142.8	
Total Loaded Airplane			

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

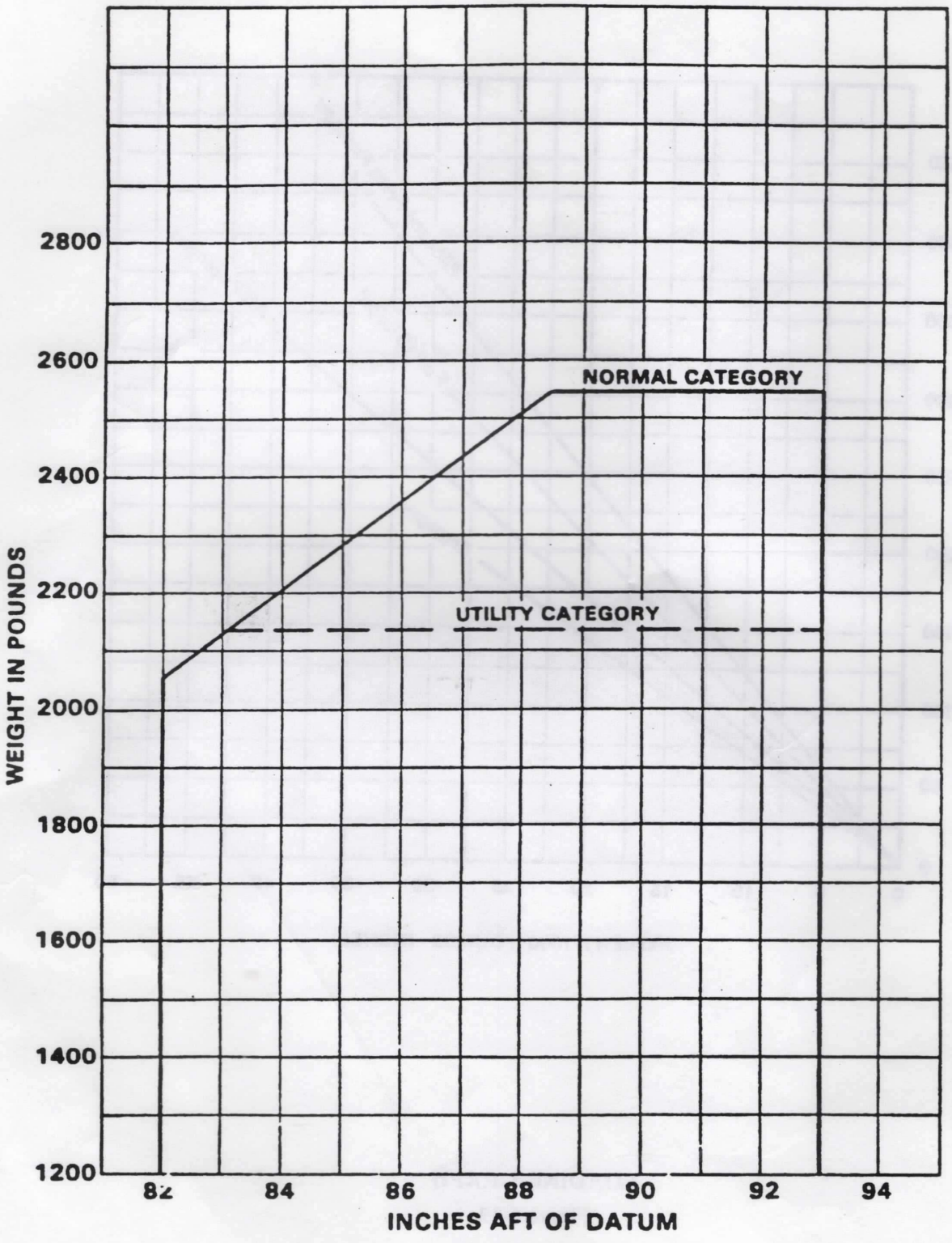
*Utility Category Operation - No baggage or rear passengers allowed.

SAMPLE LOADING PROBLEM (NORMAL CATEGORY)
Figure 6-9



LOADING GRAPH

Figure 6-13



C. G. RANGE AND WEIGHT

Figure 6-15

2.13 CENTER OF GRAVITY LIMITS

(a) Normal Category

Weight Pounds	Forward Limit Inches Aft of Datum	Rearward Limit Inches Aft of Datum
2550	88.6	93.0
2050 (and less)	82.0	93.0

(b) Utility Category

Weight Pounds	Forward Limit Inches Aft of Datum	Rearward Limit Inches Aft of Datum
2050 (and less)	82.0	93.0
2130	83.0	93.0

NOTES

Straight line variation between points given.

The datum used is 78.4 inches ahead of the wing leading edge at the inboard intersection of the straight and tapered section.

It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See Section 6 (Weight and Balance) for proper loading instructions.

2.15 MANEUVER LIMITS

(a) Normal Category - All acrobatic maneuvers including spins prohibited.
(b) Utility Category - Approved maneuvers for bank angles exceeding 60°.

	Entry Speed
Steep Turns	113 KIAS
Lazy Eights	113 KIAS
Chandelles	113 KIAS

2.17 FLIGHT LOAD FACTORS

	NORMAL	UTILITY
(a) Positive Load Factor (Maximum)	3.8 G	4.4 G
(b) Negative Load Factor (Maximum)	No inverted maneuvers approved	

WEIGHT AND BALANCE RECORD

ALL FIGURES FROM ORIGINAL LOG BOOK No 1, LIMITS ??

Part A - Weight and Balance Maintenance Data *(to be completed by a Weight and Balance Control Officer (WBCO))*

Approval Stamp

Weight and Balance Report Ref:

Centre of Gravity Position (CG) is LONGITUDINAL / ~~LATERAL~~ *(delete as appropriate)*

measured ..... of datum

Configuration

Aircraft Longitudinal / Lateral Datum

1981 MM FUS DWG DATUM FORE EDGE.

Revision and Re - Issue Required

Empty Weight and Empty Weight CG (Weighing or Validation dated / /)

Weight (kg)	Arm (mm)	Index

Maximum and Minimum Empty Weight & Empty Weight CG.
Revision and Re-Issue by WBCO is required when calculated running totals are

	Weight (kg)	Arm (mm)
MORE THAN		
or LESS THAN		

Part B - Record of Empty Weight and Balance Changes *(the person co-ordinating maintenance shall ensure that Part B is calculated and recorded in accordance with CAO 100.7)*

Date	Description of Alteration	Moment Arm from Datum (mm)	Weight and Balance Change				Running Total of Empty Weight & Empty Weight CG		
			Added (+)		Removed (-)				
			Weight (kg)	Index	Weight (kg)	Index	Weight (kg)	Arm (mm)	Index
23/3/82							692.79	2224	1540690
28.2.00	INSTALATION OF WING TIP STROBES	2708.4	1.4 Kg	3791.76			694.19	2226	1544482
24.10.01	Remove KY96A Com.	1781			1.27 kg	2261.87	692.92	2226	1542220
24.10.01	INSTALLED GNC 300, KI202, AK350	1781	2.3 kg	4096.3			695.22	2224	1546316
1-6-15	Installation of Garmin Remove KX175	1480	2.8	4144	-3	-4440	695.02	224	1546020
	Install MD200-306 Remove KI-204	1490	0.6	1490	-0.8	-1192	694.82	2225	1545722
	Install GA35 Antenna	7060	0.2	412			695.02	2225	1546134
	Install KT74 Remove GTX-327	1490	1.4	2086	-1.2	-1788	695.22	2224	1546432
	Remove KN73/C/S.	4690			-0.9	-4221	694.32	2221	1542211
	Remove ACK	1470	0.2		-0.2	-294	694.12	2221	1541917

Organisation | Aircraft Type PIPER PA28-181 | VH- M12 | Page 1

WEIGHT AND BALANCE RECORD *(Please see reverse for instructions)*

DA 3202 (Int 9/90)

Stock No 83103.1