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WEIGHT AND BALANCE

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**Equipment List (Form 540-0002) ENCLOSED WITH THIS HANDBOOK

*For 1982 and preceding models.

**For 1983 and subsequent models.

**SECTION 6
WEIGHT AND BALANCE**

6.1 GENERAL

In order to achieve the performance and flying characteristics which are designed into the airplane, it must be flown with the weight and center of gravity (C.G.) position within the approved operating range (envelope). Although the airplane offers a flexibility of loading, it cannot be flown with the maximum number of adult passengers, full fuel tanks and maximum baggage. With this loading flexibility comes responsibility. The pilot must insure that the airplane is loaded within the loading envelope before a takeoff.

Misloading carries consequences for any aircraft. An overloaded airplane will not take off, climb or cruise as well as a properly loaded one. The heavier the airplane is loaded, the less climb performance it will have.

Center of gravity is a determining factor in flight characteristics. If the C.G. is too far forward in any airplane, it may be difficult to rotate for takeoff or landing. If the C.G. is too far aft, the airplane may rotate prematurely on takeoff or tend to pitch up during climb. Longitudinal stability will be reduced. This can lead to inadvertent stalls and even spins; and spin recovery becomes more difficult as the center of gravity moves aft of the approved limit.

A properly loaded airplane, however, will perform as intended. Before the airplane is licensed, it is weighed, and a basic empty weight and C.G. location is computed (basic empty weight consists of the standard empty weight of the airplane plus the optional equipment). Using the basic empty weight and C.G. location, the pilot can easily determine the weight and C.G. position for the loaded airplane by computing the total weight and moment and then determining whether they are within the approved envelope.

The basic empty weight and C.G. location are recorded in the Weight and Balance Data Form (Figure 6-7) and the Weight and Balance Record (Figure 6-9). The current values should always be used. Whenever new equipment is added or any modification work is done, the mechanic responsible for the work is required to compute a new basic empty weight and C.G. position and to write these in the Aircraft Log Book and the Weight and Balance Record. The owner should make sure that it is done.

A weight and balance calculation is necessary in determining how much fuel or baggage can be loaded so as to keep within allowable limits. Check calculations prior to adding fuel to insure against improper loading.

The following pages are forms used in weighing an airplane in production and in computing basic empty weight, C.G. position, and useful load. Note that the useful load includes usable fuel, baggage, cargo and passengers. Following this is the method for computing takeoff weight and C.G.

6.3 AIRPLANE WEIGHING PROCEDURES

At the time of licensing, Piper Aircraft Corporation provides each airplane with the basic empty weight and center of gravity location. This data is supplied by Figure 6-7.

The removal or addition of equipment or airplane modifications can affect the basic empty weight and center of gravity. The following is a weighing procedure to determine this basic empty weight and center of gravity location:

(a) Preparation

- (1) Be certain that all items checked in the airplane equipment list are installed in the proper location in the airplane.
- (2) Remove excessive dirt, grease, moisture, foreign items such as rags and tools from the airplane before weighing.
- (3) Defuel airplane. Then open all fuel drains until all remaining fuel is drained. Operate engine on each tank until all undrainable fuel is used and engine stops.
- (4) Fill to full capacity with oil and operating fluids.

- (5) Place pilot and copilot seats in a center position on the seat tracks. Put flaps in the fully retracted position and all control surfaces in the neutral position. Tow bar should be in the proper location and all entrance and baggage doors closed.
- (6) Weigh the airplane inside a closed building to prevent errors in scale readings due to wind.

(b) Leveling

- (1) With airplane on scales, block main gear oleo pistons in the fully extended position.
- (2) Level airplane (refer to Figure 6-3) deflating nose wheel tire, to center bubble on level.

(c) Weighing Airplane

With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.

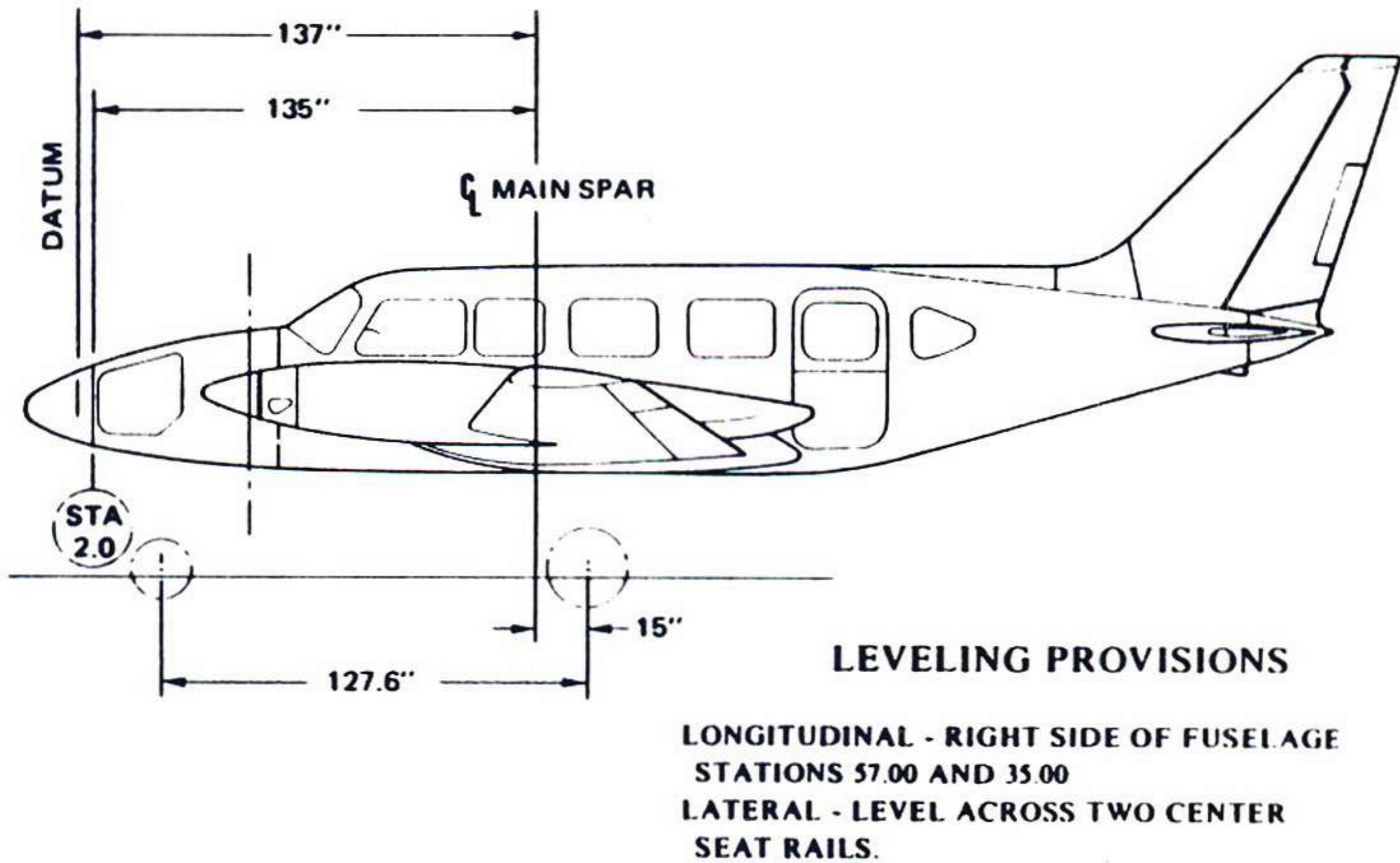
**AIRPLANE AS WEIGHED
(Including full oil and operating fluids but no fuel)**

Scale Position and Symbol	Scale Reading	Tare	Net Weight
Nose Wheel (N)			
Right Main Wheel (R)			
Left Main Wheel (L)			
Weight (as Weighed) (T)	—	—	

**WEIGHING FORM
Figure 6-1**

(d) Center of Gravity

- (1) The following geometry applies to the PA-31-350 airplane when it is level. Refer to Leveling paragraph 6.3 (b).



LEVELING DIAGRAM
Figure 6-3

- (2) C.G. Arm of airplane as weighed =

$$(137 + 15) - \frac{(127.6)(N)}{T} =$$

Inches Aft of Datum

(c) Basic Empty Weight

Item	Arm		
	Weight x (Lbs)	(Inches Aft of Datum)	= Moment (In-Lbs)
Weight (as Weighed)			
Unusable Fuel (Inbd.) (6 gal.)	36	126.8	4565
Unusable Fuel (Outbd.) (4 gal.)	24	148	3552
Basic Empty Weight			

BASIC EMPTY WEIGHT

Figure 6-5

6.5 WEIGHT AND BALANCE DATA RECORD

The Basic Empty Weight, Center of Gravity Location and Useful Load listed in Figure 6-7 are for the airplane as licensed at the factory. These figures apply only to the specific airplane serial number and registration number shown.

The basic empty weight of the airplane as licensed at the factory has been entered in the Weight and Balance Record (Figure 6-9). This form is provided to present the current status of the airplane basic empty weight and a complete history of previous modifications. Any change to the permanently installed equipment or modification which affects weight or moment must be entered in the Weight and Balance Record and Equipment List.

MODEL PA-31-350, CHIEFTAIN

Airplane Serial Number _____

Registration Number _____

Date _____

AIRPLANE BASIC EMPTY WEIGHT

Item	Weight (Lbs)	C.G. Arm (Inches Aft of Datum)	Moment (In-Lbs)
Standard Empty Weight*			
Optional Equipment (if applicable)			
Basic Empty Weight			

*The standard empty weight includes full oil capacity, full operating fluids and 10 gallons of unusable fuel.

AIRPLANE USEFUL LOAD – NORMAL CATEGORY OPERATION

(Max. Ramp Weight) - (Basic Empty Weight) = Useful Load

(7045 lbs.) - (lbs.) = lbs.

THIS BASIC EMPTY WEIGHT, C.G. AND USEFUL LOAD ARE FOR THE AIRPLANE AS LICENSED AT THE FACTORY. REFER TO APPROPRIATE AIRCRAFT RECORD WHEN ALTERATIONS HAVE BEEN MADE.

WEIGHT AND BALANCE DATA FORM

Figure 6-7

PA-31-350		Serial Number		Registration Number			Page Number	
Date	Item No.	Description of Article or Modification	Added (+) Removed (-)	Weight Change			Running Basic Empty Weight	
				Wt. (Lb.)	Arm (In.)	Moment 100	Wt. (Lb.)	Moment 100
		As licensed.						

WEIGHT AND BALANCE RECORD
Figure 6-9

PA-31-350		Serial Number		Registration Number			Page Number	
Date	Item No.	Description of Article or Modification	Added (+) Removed (-)	Weight Change			Running Basic Empty Weight	
				Wt. (Lb.)	Arm (In.)	Moment 100	Wt. (Lb.)	Moment 100

WEIGHT AND BALANCE RECORD (cont)
Figure 6-9 (cont)

6.7 GENERAL LOADING RECOMMENDATIONS

EXECUTIVE CONFIGURATION (8 SEAT)

- (a) Load occupants from front to rear progressively.
- (b) When carrying from 1 to 6 occupants, load rear baggage compartment first.
- (c) When carrying more than 6 occupants, fuel and/or baggage may have to be reduced.
- (d) When carrying 7 occupants, load front and rear baggage compartments equally.
- (e) When carrying 8 occupants, load front baggage compartments first and locate heaviest occupants forward. Forward baggage may be required to bring the loaded airplane's C.G. within allowable limits.

NOTE

These general loading recommendations suggest normal proper loading procedures. The charts, graphs, instructions, and plotter should be checked to assure that the airplane is within the allowable weight vs. center of gravity envelope.

COMMUTER CONFIGURATION (10 SEAT)

- (a) Load occupants from front to rear progressively.
- (b) When carrying from 1 to 7 occupants, load rear baggage compartment first.
- (c) When carrying more than 6 occupants, fuel and/or baggage may have to be reduced.
- (d) When carrying 8 or 9 occupants, load front and rear baggage compartments equally.

- (e) When carrying 10 occupants, load front baggage compartment first and locate heaviest occupants forward. Forward baggage may be required to bring the loaded airplane's C.G. within allowable limits.

NOTE

These general loading recommendations suggest normal proper loading procedures. The charts, graphs, instructions, and plotter should be checked to assure that the airplane is within the allowable weight vs. center of gravity envelope.

6.9 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 Chart (Figure 6-17) 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 Weight, Moment and C.G. Limits graph (Figure 6-19). If the point falls within the C.G. envelope, the loading meets the weight and balance requirements.
- (f) Location of the point on the Weight, Moment, and C.G. Limits graph indicates whether the airplane is slightly nose heavy or slightly tail heavy and can assist in setting pitch trim for takeoff.

IT IS THE RESPONSIBILITY OF THE PILOT AND AIRCRAFT OWNER TO INSURE THAT THE AIRPLANE IS LOADED PROPERLY. THE CHARTS, GRAPHS, INSTRUCTIONS, AND PLOTTER SHOULD BE CHECKED TO ASSURE THAT THE AIRPLANE IS WITHIN THE ALLOWABLE WEIGHT VS. CENTER OF GRAVITY ENVELOPE.

ITEM	WT. LBS.				ARM-IN.	MOMENT					
Basic Airplane	4	8	3	6		6	0	0	3	2	6
Revised Airplane											
Pilot's Seat		1	7	5	95.0		1	6	6	2	5
Copilot's Seat		1	6	0	95.0		1	5	2	0	0
Seat No. 3		1	4	0	132/137 (Reversed)		1	8	4	8	0
Seat No. 4		1	6	0	132/137 (Reversed)		2	1	1	2	0
Seat No. 5					195.0						
Seat No. 6					195.0						
Seat No. 7					229.0						
Seat No. 8					242.0						
Fwd. Baggage			5	0	19.0				9	5	0
Rear Baggage		1	5	0	255.0		3	8	2	5	0
Rt. Nac. Baggage Forward Half			5	0	145.0			7	2	5	0
Rt. Nac. Baggage Rear Half			5	0	192.0			9	6	0	0
Lt. Nac. Baggage Forward Half			5	0	145.0			7	2	5	0
Lt. Nac. Baggage Rear Half			5	0	192.0			9	6	0	0
Inbd. Fuel		6	3	6	126.8		8	0	6	4	5
Outbd. Fuel		4	5	6	148.0		6	7	4	8	8
Other											
Total Wt.	6	9	6	3	Total Moment	8	9	2	7	8	4

C.G. Location for Take-off 128.2 from Figure 6-19

SAMPLE LOADING PROBLEM
Figure 6-11

**SECTION 6
WEIGHT AND BALANCE**

**PIPER AIRCRAFT CORPORATION
PA-31-350, CHIEFTAIN**

ITEM	WT. LBS.				ARM-IN.	MOMENT			
Basic Airplane									
Revised Airplane									
Pilot's Seat					95.0				
Copilot's Seat					95.0				
Seat No. 3					132/137 (Reversed)				
Seat No. 4					132/137 (Reversed)				
Seat No. 5					195.0				
Seat No. 6					195.0				
Seat No. 7					229.0				
Seat No. 8					242.0				
Fwd. Baggage					19.0				
Rear Baggage					255.0				
Rt. Nac. Baggage Forward Half					145.0				
Rt. Nac. Baggage Rear Half					192.0				
Lt. Nac. Baggage Forward Half					145.0				
Lt. Nac. Baggage Rear Half					192.0				
Inbd. Fuel					126.8				
Outbd. Fuel					148.0				
Other									
Total Wt.					Total Moment				

C.G. Location for Take-off

WORK SHEET - EXECUTIVE LOADING
Figure 6-13

ITEM	WT. LBS.				ARM-IN.	MOMENT			
Basic Airplane									
Revised Airplane									
Pilot's Seat					95.0				
Copilot's Seat					95.0				
Seat No. 3					132				
Seat No. 4					132				
Seat No. 5					163.5				
Seat No. 6					163.5				
Seat No. 7					195.0				
Seat No. 8					195.0				
Seat No. 9					229.0				
Seat No. 10					247.0				
Fwd. Baggage					19.0				
Rear Baggage					255.0				
Rt. Nac. Baggage Forward Half					145.0				
Rt. Nac. Baggage Rear Half					192.0				
Lt. Nac. Baggage Forward Half					145.0				
Lt. Nac. Baggage Rear Half					192.0				
Inbd. Fuel					126.8				
Outbd. Fuel					148.0				
Other									
Total Wt.					Total Moment				

C.G. Location for Take-off
WORK SHEET - COMMUTER LOADING
Figure 6-15

**OCCUPANTS
EXECUTIVE SEATING**

Weight	Pilot, Copilot Arm 95.0	Seats 3 & 4 Fwd Facing Arm 132.0	Seats 3 & 4 Aft Facing Arm 137.0	Seats 5 & 6 Arm 195.0	Seat 7 Arm 229	Seat 8 Arm 242
Moment / 100						
120	114	158	164	234	275	290
130	124	172	178	254	298	315
140	133	185	192	273	321	339
150	143	198	206	293	344	363
160	152	211	219	312	366	387
170	162	224	233	332	389	411
180	171	238	247	351	412	436
190	181	251	260	371	435	460
200	190	264	274	390	458	484

LOADING CHART
Figure 6-17

OCCUPANTS
COMMUTER SEATING

Weight	Pilot, Copilot Arm 95.0	Seats 3 & 4 Arm 132.0	Seats 5 & 6 Arm 163.5	Seats 7 & 8 Arm 195	Seat 9 Arm 229.0	Seat 10 Arm 247.0
Moment / 100						
120	114	158	196	234	275	296
130	124	172	213	254	298	321
140	133	185	229	273	321	345
150	143	198	245	293	344	370
160	152	211	262	312	366	395
170	162	224	278	332	389	420
180	171	238	294	351	412	445
190	181	251	311	371	435	469
200	190	264	327	390	458	494

LOADING CHART (cont)
Figure 6-17 (cont)

**SECTION 6
WEIGHT AND BALANCE**

**PIPER AIRCRAFT CORPORATION
PA-31-350, CHIEFTAIN**

BAGGAGE

	Fwd Baggage Arm 19	Rear Baggage Arm 255	Nacelle Bag. Fwd Half Arm 145	Nacelle Bag. Rear Half Arm 192
Weight	Moment / 100			
10	2	26	15	19
20	4	51	29	38
30	6	77	44	58
40	8	102	58	77
50	10	128	73	96
60	11	153	87	115
70	13	179	102	134
80	15	204	116	154
90	17	230	131	173
100	19	255	145	192
110	21	281	160	211
120	23	306	174	230
130	25	332	189	250
140	27	357	203	269
150	29	383	218	288
160	30	408	—	—
170	32	434	—	—
180	34	459	—	—
190	36	485	—	—
200	38	510	—	—

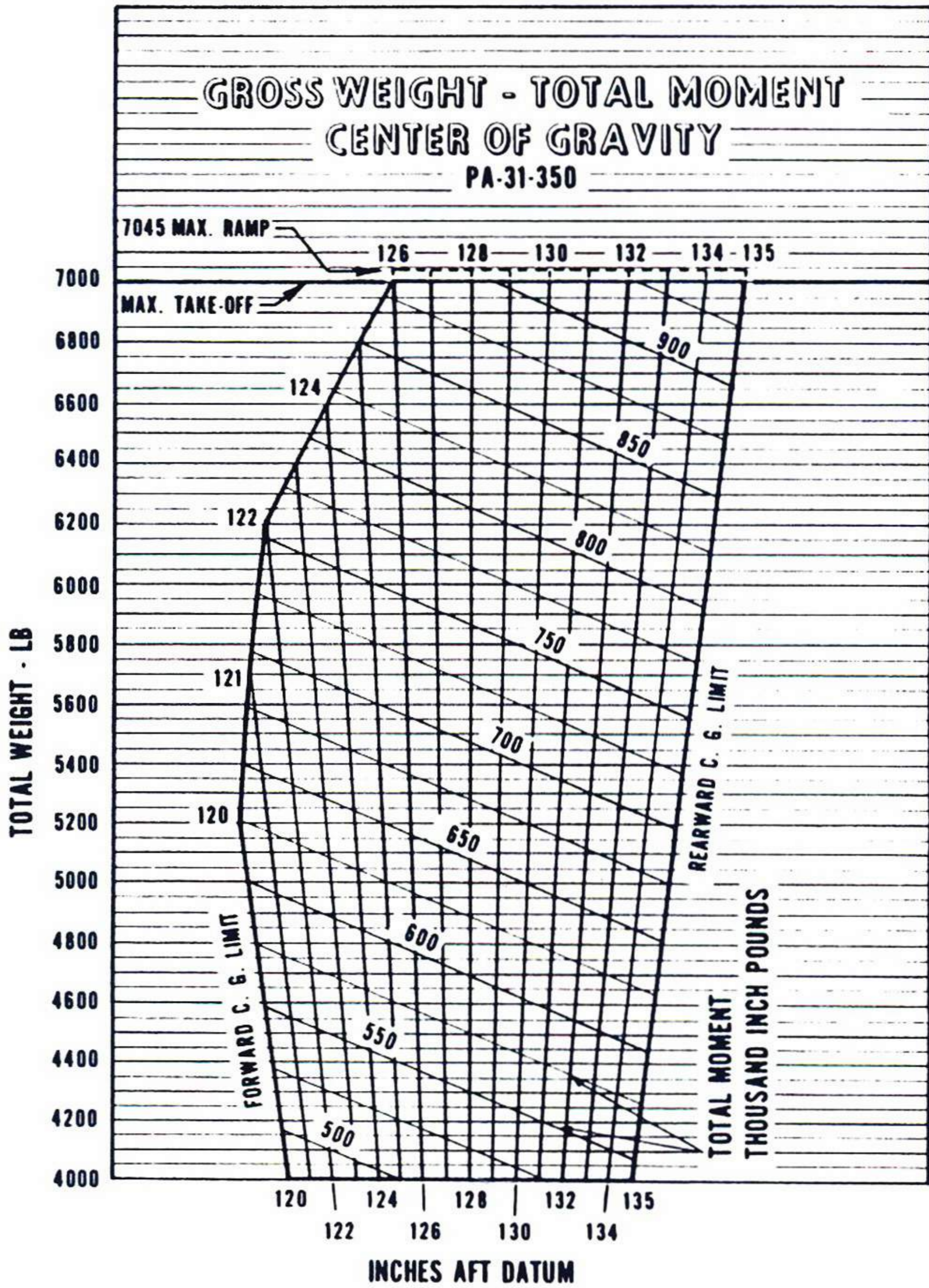
LOADING CHART (cont)
Figure 6-17 (cont)

FUEL

Gallons	Weight Lbs.	Inboard Tanks Arm = 126.8	Outboard Tanks Arm - 148.0
		Moment / 100	
5	30	38	44
10	60	76	89
15	90	114	133
20	120	152	178
25	150	190	222
30	180	228	266
35	210	266	311
40	240	304	355
45	270	342	400
50	300	380	444
55	330	418	488
60	360	456	533
65	390	495	577
70	420	533	622
75	450	571	666
76	456	—	675
80	480	609	—
85	510	647	—
90	540	685	—
95	570	723	—
100	600	761	—
105	630	799	—
106	636	806	—

3 gals. unusable fuel in each inboard tank and 2.0 gals. unusable fuel in each outboard tank included in basic weight (60.0 lbs., 8117 in. lbs. total)

LOADING CHART (cont)
Figure 6-17 (cont)



WEIGHT, MOMENT AND C.G. LIMITS
Figure 6-19

6.11 WEIGHT AND BALANCE VISUAL PLOTTER

The Weight and Balance Visual Plotter furnished with this airplane is a weight and center of gravity computing device.

The face of the plotter displays the slots used for plotting and the graphic center of gravity envelope. On the back of the plotter are printed instructions for use and general loading recommendations. The center of gravity envelope on the face shows all allowable moment conditions between 4000 and 7000 pounds, with the limits outlined in red.

The "Basic Empty Weight and Center of Gravity" location is taken from the Weight and Balance Form (Figure 6-7), the Weight and Balance Record (Figure 6-9) or the latest FAA major repair or alteration form.

CAUTION

It is the responsibility of the owner and pilot to ascertain that the airplane always remains within the allowable weight vs. center of gravity envelope while in flight.

6.13 INSTRUCTION FOR USING PLOTTER

- (a) Locate point on plotter face corresponding to the "Basic Empty Weight" and "C.G." location.
- (b) Zero the "OCCUPANTS, 1ST & 2ND" slot over the "Basic Empty Weight" point; establish new point at weight corresponding to occupants weight.
- (c) For 3RD & 4TH SEATS, repeat step (b) from point 2 (NOTE: Use correct plotter side for EXECUTIVE or COMMUTER seating configuration).
- (d) For 5TH & 6TH SEATS, repeat (c) from point 3.
- (e) For 7TH SEAT, repeat step (d) from point 4.
- (f) For 8TH SEAT, repeat step (e) from point 5.

- (g) Zero the "FRONT BAGGAGE" slot over point 6; establish new point at weight corresponding to front baggage weight.
- (h) For "REAR BAGGAGE" repeat step (g) from point 7.
- (i) For "NACELLE LOCKER BAGGAGE" zero "NAC LOCKER REAR" slot over point 8; establish new point "R" corresponding to the total baggage weight in the rear half of both lockers.

Zero "NAC LOCKER FWD" slot over point "R"; establish new point "F" corresponding to the total baggage weight in the forward half of both lockers.

- (j) Zero the "INBOARD FUEL" slot over point "F"; establish new point at fuel quantity desired.
- (k) For "OUTBOARD FUEL" repeat step (j) from point 10.

NOTES

Should the fuel slot leave the "C.G. Envelope" (outlined in red) between 126 and 135 inches, the fuel indicated at the exit point is maximum allowable.

Should the fuel slot leave the "C.G. Envelope" other than between 126 and 135 inches, the baggage or passenger load should be redistributed forward or aft as required, to allow a higher load.

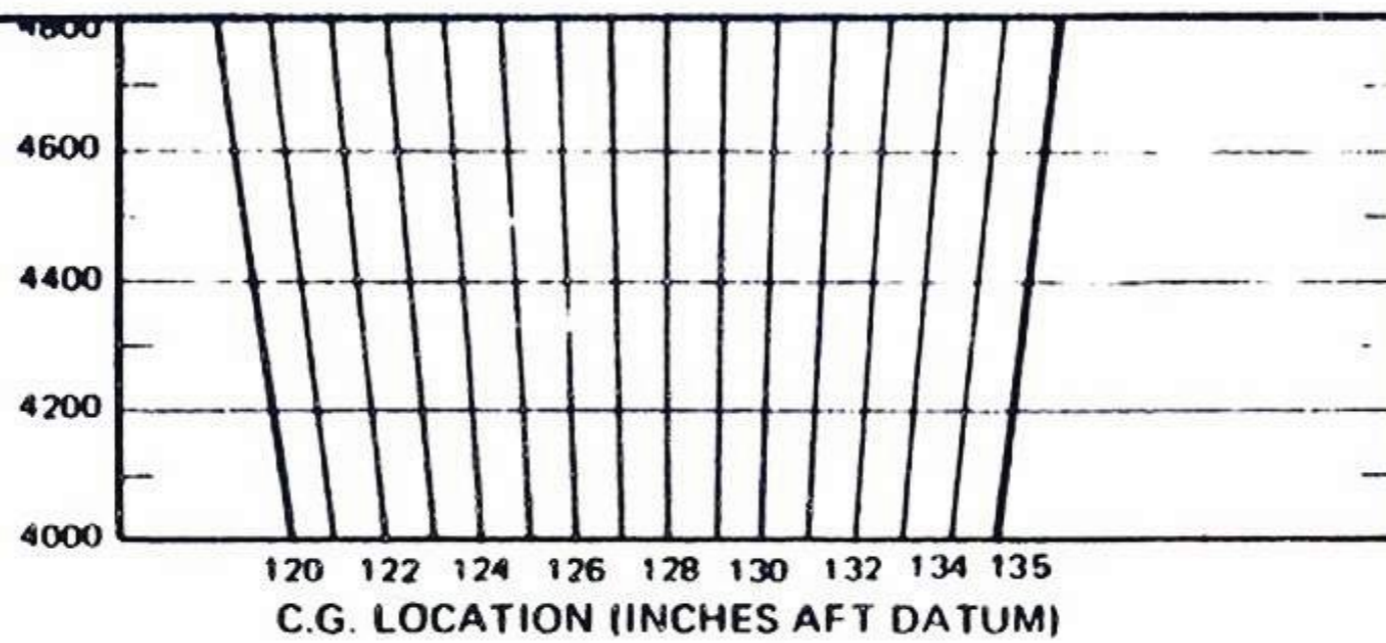
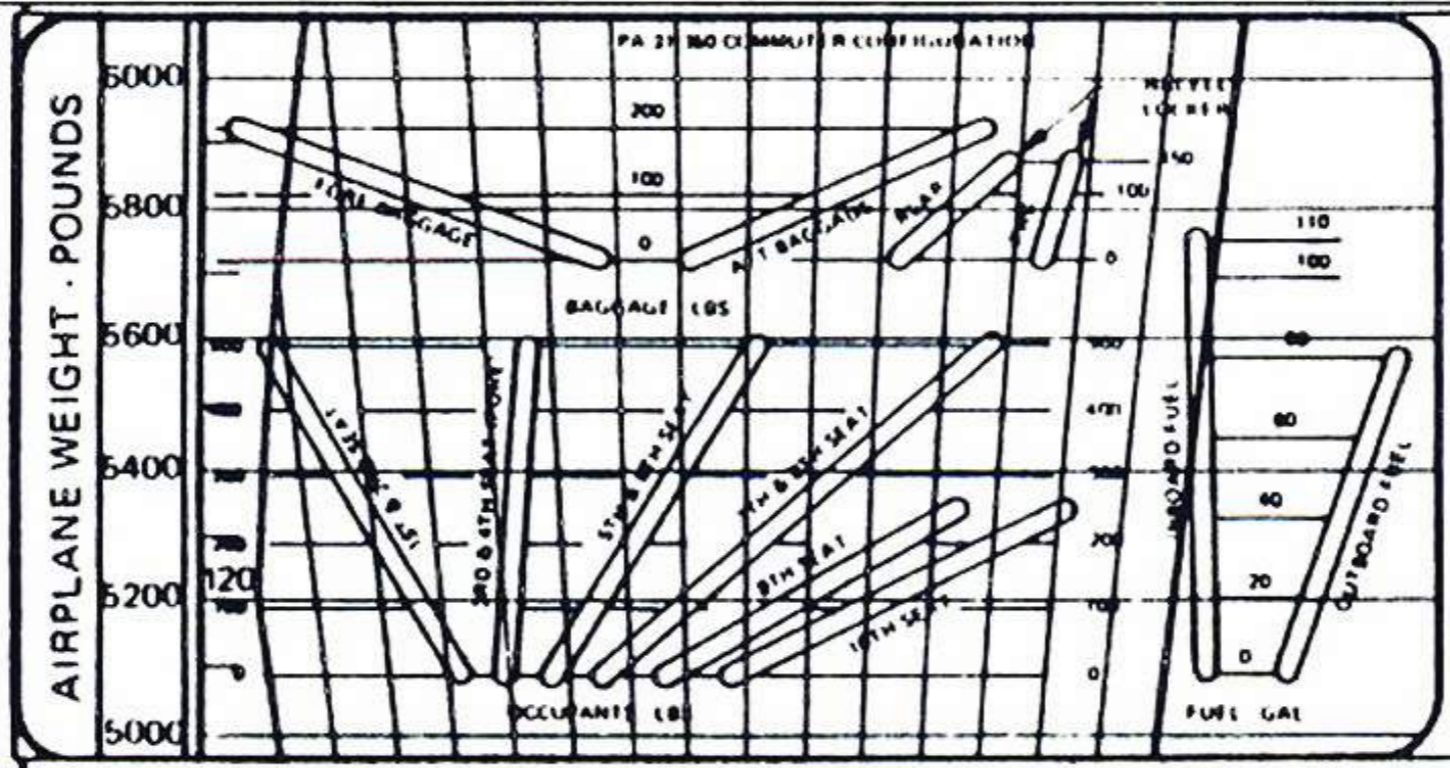
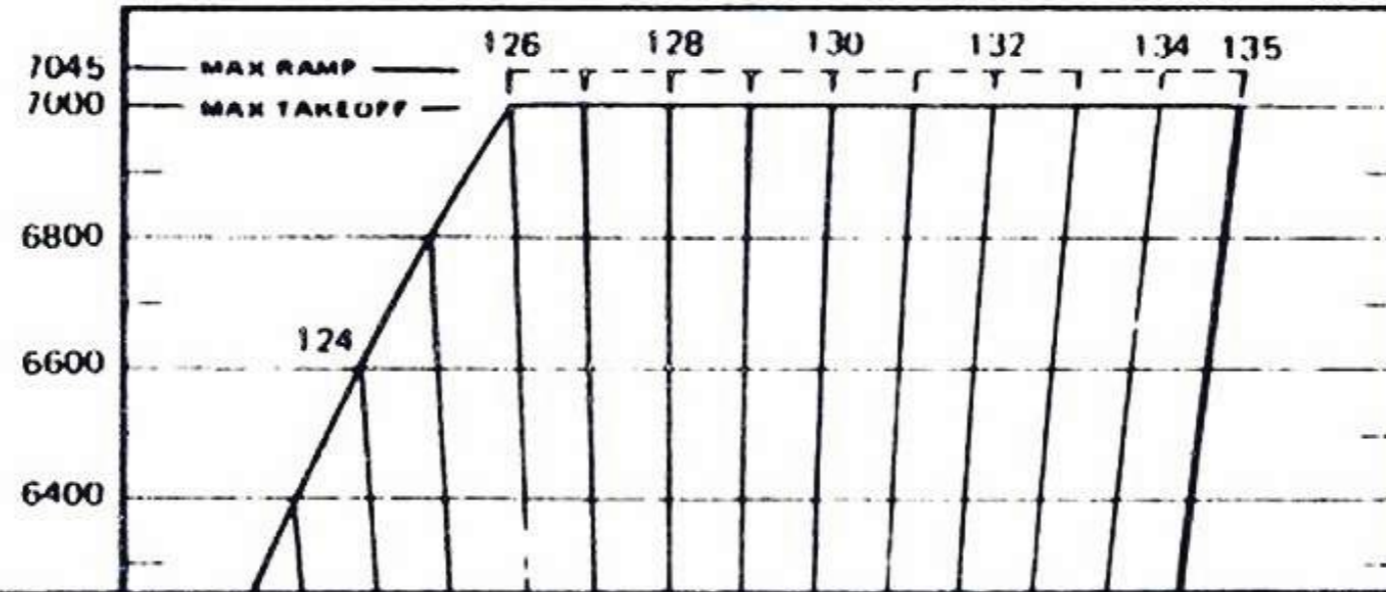
SEATING CONFIGURATION:

- (1) EXECUTIVE configuration:
 - 1ST & 2ND SEATS forward facing
 - 3RD & 4TH SEATS aft facing
 - 5TH thru 8TH SEATS forward facing
- (2) COMMUTER configuration:
 - 1ST thru 10TH SEATS forward facing



**MODEL PA 31-350
WEIGHT AND BALANCE
VISUAL PLOTTER**

IT IS THE RESPONSIBILITY OF THE OWNER AND PILOT TO ASCERTAIN THAT THE AIRPLANE ALWAYS REMAINS WITHIN THE ALLOWABLE WEIGHT VS. CENTER OF GRAVITY ENVELOPE WHILE IN FLIGHT.



WARNING
Do not leave this plotter exposed to excessive heat or direct rays of the sun for long periods of time.

**WEIGHT AND BALANCE VISUAL PLOTTER
Figure 6-21**

6.15 CARGO LOADING

An optional cargo door facilitates loading by providing an opening 45 inches in width and a minimum 31 inches in height. To aid loading computations a cargo loading chart and a cargo loading placard are provided. The loading chart is located in the Weight and Balance Section of this manual and the cargo placard is located on the aft baggage compartment bulkhead interior panel. The chart has station line references which define the cargo areas and also aid in measuring the arm of the load.

Usually the C.G. of an object is at the center of the object except with unusually shaped objects, in which case the C.G. is near its greatest mass. If you are loading a number of items, which weigh the same, the C.G. of all the items can be measured at the center of the load. Items of unequal weight should be figured separately. Weight and C.G. computations should be calculated before actual loading. Also compute load weight and C.G.; then compute fuel weight and total C.G. because it is possible in certain instances to have the C.G. move aft of the allowable aft C.G. while burning off fuel.

The procedure for computing total weight and c.g. location is the same as that for passenger occupancy. If the airplane is licensed with the cargo barriers and restraining equipment installed, the basic airplane will include the weights and arms of these items. If this equipment is installed later, the basic airplane shall be revised to take into account the equipment removed and added. Weights and arms of these items are listed in the Equipment List.

The Cargo Loading Work Sheet is used in a similar manner as in the previous example. It is the pilot's responsibility to determine the actual arms of items loaded in a given area.

The aircraft has a placard installed on the aft bulkhead interior panel. The cargo loading placard states the maximum weight and floor loadings permissible. In addition the barriers and restraining equipment are limited as follows:

- (a) Cargo barriers - Maximum restraining capacity of 2,000 lbs. at 19 in c.g. height of cargo.
- (b) Cargo net - Maximum restraining capacity of 1,600 lbs. at 24 in c.g. height of cargo. This capacity is increased to 2,000 lbs. at 19 in c.g. height when used with cargo barriers.
- (c) Cargo straps - Maximum restraining capacity of 150 lbs. at 12 in. c.g. height of cargo.

- (d) Baggage tie down rings attached to seat tracks - maximum restraining capacity of 200 lbs. each.
- (e) Baggage tie down rings attached to Wedjit plates - maximum tie down capacity of 200 lbs. each.

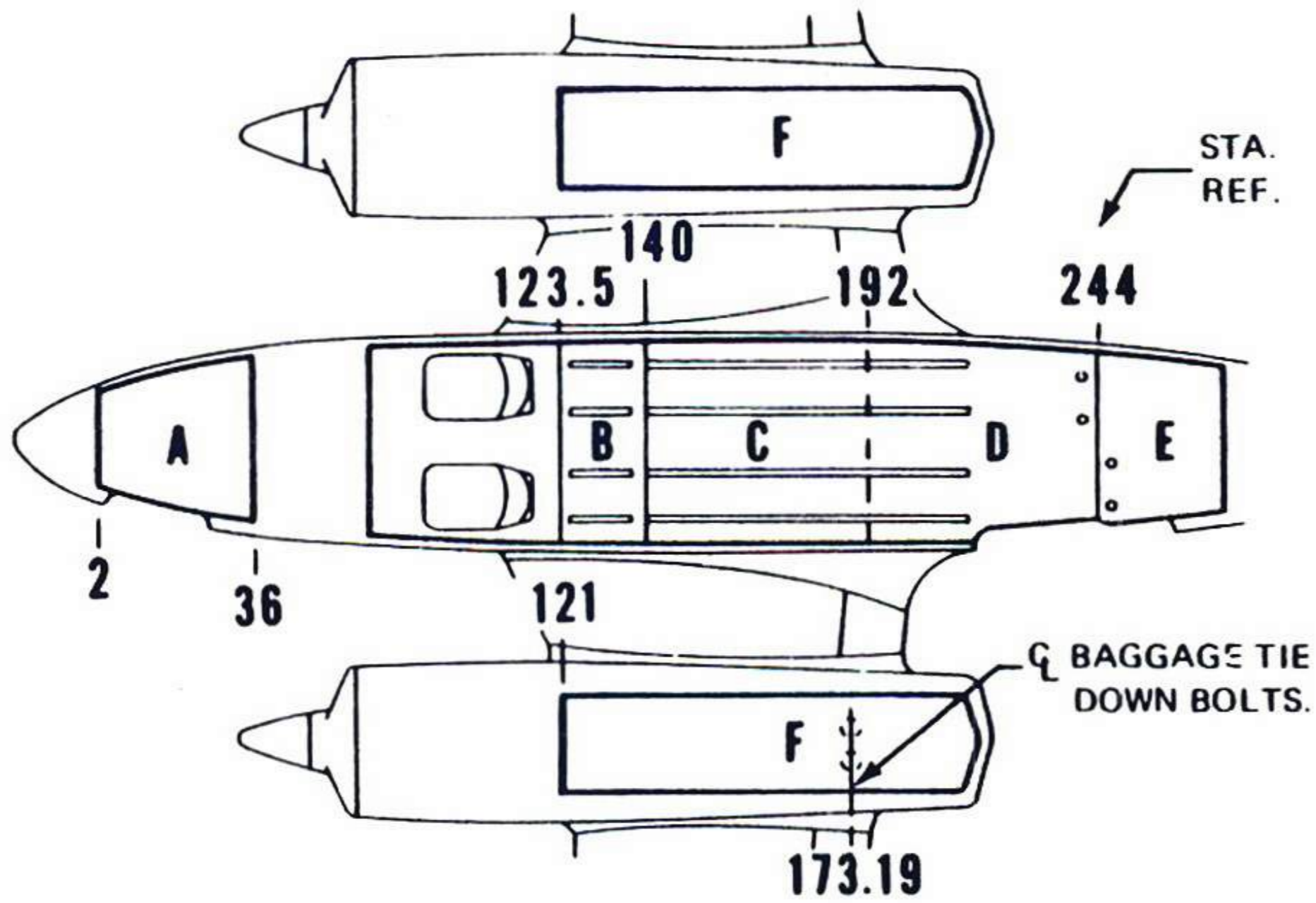
If the airplane is licensed with passenger seats installed, some or all of them may be removed for cargo usage.

When seats are removed for cargo stowage, the Basic Empty Weight and corresponding C.G. must be corrected prior to determination of the loading schedule. The weights and arms for these seats are listed in the Equipment List.

Generally when loading, the heavier items should be loaded in sections B & C first and the lighter items in sections D & E.

NOTE

When loading heavy items it is recommended to install a post under the tail skid to prevent the tail from settling while loading. The parking brakes should also be set.



MAXIMUM CAPACITY

AREA	FLOOR LOAD LBS/SQ FT	ALLOWABLE LBS
A	100	200
B	200	400
C	200	1800
D	200	900
E	100	200
F	10	150 EACH
		2000 TOTAL

MAXIMUM TIEDOWN CAPACITY

PER FOOT OF TRACK 200 LBS
 PER TRACK 900 LBS
 PER TIE DOWN RING 200 LBS

CARGO MUST BE LOADED WITHIN THE WEIGHT
 AND BALANCE LIMITS OF THIS AIRCRAFT

CARGO LOADING CHART

Figure 6-23

The forward baggage compartment will probably have to be loaded in order to utilize sections D & E. The empty weight of the aircraft does not include the cargo barriers, pads, tie-down rings and straps and cargo nets. However, the above items were included in the empty aircraft weight and C.G. in the following example.

EXAMPLE:

	Weight	x	Arm	=	Moment
A/C Empty Weight	4316		122.5		528,710
Pilot	175		95		16,625
Load Section A	200		19		3,800
Load Section B	400		131.5		52,600
Load Section C	400		164.0		65,600
Load Section C	200		174.0		34,800
Load Section D	400		218.0		87,200
TOTAL	6091				789,335
$\text{Moment} \div \text{Weight} = \text{C.G.}$ $789,335 \div 6091 = 129.6''$					
Inboard Fuel 106 gal	636				80,600
Outboard Fuel 45.5 gal	273				40,404
	7000				910,339
$910,339 \div 7000 = 130.0''$					

In the above example the aircraft C.G. falls within the limits (both C.G. and weight).

**SECTION 6
WEIGHT AND BALANCE**

**PIPER AIRCRAFT CORPORATION
PA-31-350, CHIEFTAIN**

NOTE

Cargo Barriers & Restraining Equipment is included in basic or revised airplane weight and arm.

ITEM	WT. LBS.				ARM-IN	MOMENT			
Basic Airplane									
Revised Airplane									
Pilot's Seat					95.0				
Copilot's Seat					95.0				
Area A					2.0 to 35.0*				
Area B					123.0 to 140.0*				
Area C					140.0 to 192.0*				
Area D					192.0 to 244.0*				
Area E					244.0 to 274.0*				
Area F Rt. Locker Fwd.					121.0 (135 w/air cond) to 174.0*				
Area F Rt. Locker Rear					174.0 to 210.0*				
Area F Left Locker Fwd.					121.0 to 174.0*				
Area F Left Locker Rear					174.0 to 210.0*				
Inbd. Fuel					126.8				
Outbd. Fuel					148.0				
Other									
Total Wt.					Total Moment				

C.G. Location for Take-off

*Pilot's responsibility to determine actual arm of item loaded. See Figure 6-23 for locations of loading areas.

WORK SHEET - CARGO LOADING

Figure 6-25