

WEIGHT AND BALANCE

The following information will enable you to operate your Cessna within the prescribed weight and center-of-gravity limitations. To determine weight and balance, use the Sample Loading Problem (Figure 6-3), Loading Graph (Figure 6-4), and Center-of-Gravity Moment Envelope (Figure 6-7) as follows:

Enter the appropriate basic empty weight and moment/1000 from the weight and balance records for your airplane in the YOUR AIRPLANE column of the Sample Loading Problem.

NOTE

In addition to the basic empty weight and moment noted on these records, the C.G. arm (FS) is also shown, but need not be used on the Sample Loading Problem. The moment which is shown must be divided by 1000 and this value used as the moment/1000 on the loading problem.

Use the Loading Graph to determine the moment/1000 for each additional item to be carried; then list these on the loading problem.

NOTE

Loading Graph information for the pilot, passengers and baggage is based on seats positioned for average occupants and baggage loaded in the center of the baggage areas as shown on the Loading Arrangements diagram. For loadings which may differ from these, the Sample Loading Problem lists fuselage stations (FS) for these items to indicate their forward and aft C.G. range limitations (seat travel and baggage area limitation). Refer to Figures 6-5 and 6-6 for additional loading information. Additional moment calculations, based on the actual weight and C.G. arm (FS) of the item being loaded, must be made if the position of the load is different from that shown on the Loading Graph.

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WEIGHT AND BALANCE (Continued)

Total the weights and moments/1000 and plot these values on the Center of Gravity Moment Envelope to determine whether the point falls within the envelope, and if the loading is acceptable.

BAGGAGE TIEDOWN

A nylon baggage net having four tiedown straps is provided as standard equipment to secure baggage in the area aft of the rear seat (baggage areas, A, B and C). Eight eyebolts serve as attaching points for the net. A placard on the baggage door defines the weight limitations in the baggage areas.

When baggage area A is utilized for baggage only, the four forward eyebolts should be used. When only baggage area B is used, the eyebolts just aft of the baggage door and the eyebolts above or below the shelf area may be used. When only baggage area C is utilized, the eyebolts above and below the shelf area should be used. When the cabin floor (baggage areas A and B) is utilized for baggage, the four forward eyebolts and the eyebolts mounted above or below the shelf area should be used. When there is baggage in areas B and C, the eyebolts just aft of the baggage door and the eyebolts above and below the shelf area should be used.

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WEIGHT AND BALANCE (Continued)

When baggage is contained in all three areas, the two forward eyebolts on the cabin floor, the eyebolts just aft of the baggage door or the eyebolts at the bottom of the forward portion of the shelf area and the eyebolts near the upper forward surface of the shelf area should be used.

The rear bench seat can be removed to access the floorboard area of the rear cabin. Baggage may then be tied down using ten tiedown eyebolts to standard attach points located in the interior area of the airplane shown in Figure 6-6.

The maximum allowable floor loading of the rear cabin area is 200 pounds/square foot; however, when items with small or sharp support areas are carried, the installation of a plywood floor is recommended to protect the airplane structure.

The maximum rated load weight capacity for each of the ten tiedowns is 140 pounds. Rope, strap or cable used for tiedown should be rated at a minimum of ten times the load weight capacity of the tiedown fittings used. Weight and balance calculations for items in the area of the rear seat and baggage area can be figured on the Loading Graph using the lines labeled Rear Passengers or Cargo.

SAMPLE LOADING PROBLEM

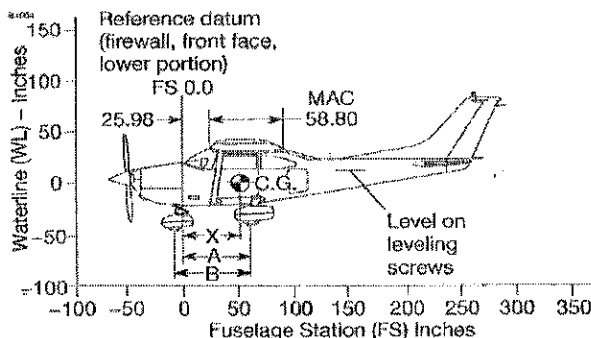
ITEM DESCRIPTION	WEIGHT AND MOMENT TABULATION			
	SAMPLE AIRPLANE		YOUR AIRPLANE	
	Weight (Lbs.)	Moment (Lb-ins. /1000)	Weight (Lbs.)	Moment (Lb-ins. /1000)
1. Basic Empty Weight (Use the data pertaining to your airplane as it is presently equipped. Includes unusable fuel and full oil)	1924	70.9		
2. Usable Fuel (At 6 Lbs./Gal.)				
Standard Fuel 87 Gallons Maximum	522	24.3		
Reduced Fuel (64 Gallons)				
3. Pilot and Front Passenger (FS 32 to 50)	340	12.6		
4. Rear Passengers (FS 74)	200	14.8		
Cargo - Replacing Rear Passenger Seat (FS 65 to 82)				
5. *Baggage "A" (FS 82 to 109) 120 Pounds Maximum	100	9.7		
*Baggage "B" (FS 109 to 124) 80 Pounds Maximum	24	3.0		
*Baggage "C" (FS 124 to 134) 80 Pounds Maximum				
6. RAMP WEIGHT AND MOMENT	3110	135.3		
7. Fuel allowance for engine start, taxi and runup	-10	-0.5		
8. TAKEOFF WEIGHT AND MOMENT (Subtract Step 7 from Step 6)	3100	134.8		

9. Locate this point (3100 at 134.8) on the Center-of-Gravity Moment Envelope, and since this point falls within the envelope, the loading is acceptable, providing that flight time is allowed for fuel burn-off to a maximum of 2950 pounds before landing.

* The maximum allowable combined weight capacity for baggage in areas A, B and C is 200 pounds. The maximum allowable combined weight capacity in areas B and C is 80 pounds.

Figure 6-3 (Sheet 1 of 2)

AIRPLANE WEIGHING FORM



MEASURING A AND B

MEASURE A AND B PER PILOT'S OPERATING HANDBOOK INSTRUCTIONS TO ASSIST IN LOCATING CG WITH AIRPLANE WEIGHED ON LANDING GEAR

Leveling Provisions

Longitudinal - Left side of tailcone at FS 130.65 and 171.65

N2217L
18281674

NOTE

It is the responsibility of the pilot to make sure that the airplane is loaded properly.

POSITION	SCALE READING	SCALE DRIFT	Symbol	NET WEIGHT (LBS)	
LEFT SIDE	771,62	0	L	771,62	Lbs
RIGHT SIDE	778,23	0	R	778,23	Lbs
NOSE	559,97	0	N _w	559,97	Lbs
AIRPLANE TOTAL AS WEIGHED				W	2.109,82 Lbs

FORMULA for Longitudinal CG:

$$(X) = (A) - \frac{(\text{NOSE GEAR NET WEIGHT}) () * (B)}{\text{NOSE AND MAIN LANDING GEAR WEIGHT TOTALLED ()}} = () \text{ INCHES AFT OF DATUM}$$

$$X = (58,9) - \frac{559,97 * 66,08}{2.109,82} = \underline{\underline{41,36}} \text{ inch} \quad \text{MAC} = \underline{\underline{26,3}} \%$$

BASIC EMPTY WEIGHT AND CENTER-OF-GRAVITY TABLE

ITEM	WEIGHT POUNDS	CG ARM (INCHES)	MOMENT (INCH-POUNDS / 1000)
AIRPLANE (CALCULATED OR AS WEIGHED INCLUDES ALL UNDRAINABLE FLUIDS, FULL OIL AND FULL TKS-FLUID)	2.109,82	41,36	87,27
DRAINABLE UNUSABLE FUEL AT (6.0 POUNDS PER GALLON) - (5 gallons)	30,00	48,00	1,44
BASIC EMPTY WEIGHT (TKS FULL)	2.139,82	41,45	88,71
BASIC EMPTY WEIGHT (TKS EMPTY)	2.093,82	39,53	82,77

Date of weighing: 20.04.2020

Sign:

CRS: 6UPY361C
DE: 145.0307
DE: 66.2671
B/C
Plus Maintenance GmbH

FIGURE 6-1. Airplane Weighing Form

Plus Maintenance GmbH
DE.145.0307
FAA 6UPY361C

SAMPLE LOADING PROBLEM

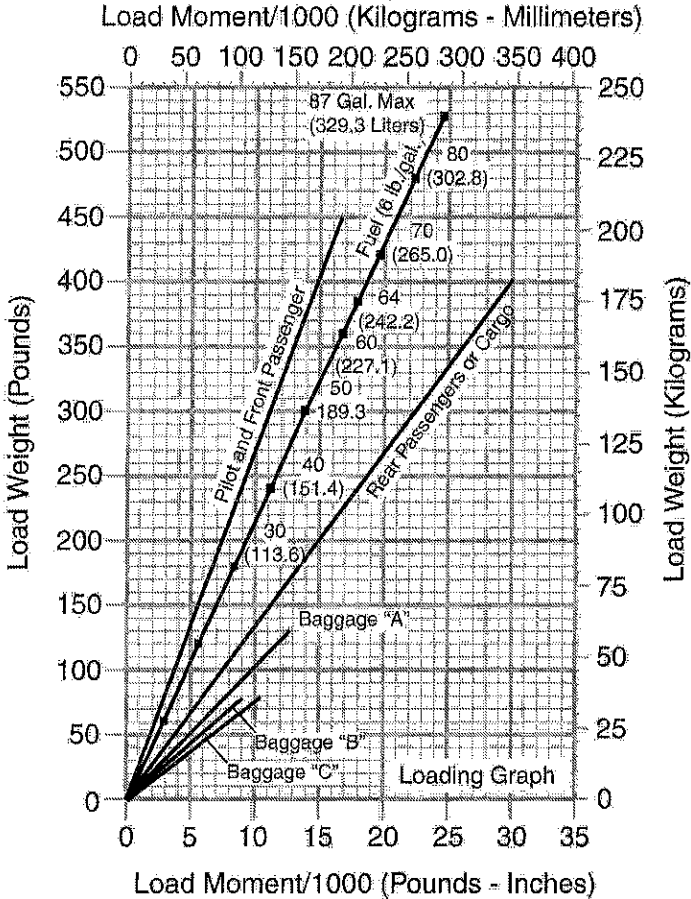
YOUR AIRPLANE		YOUR AIRPLANE		YOUR AIRPLANE	
Weight (lbs.)	Moment (Lb-ins, /1000)	Weight (lbs.)	Moment (Lb-ins, /1000)	Weight (lbs.)	Moment (Lb-ins, /1000)

When several loading configurations are representative of your operations, it may be useful to fill out one or more of the above columns so that specific loadings are available at a glance.

Figure 6-3 (Sheet 2)

LOADING GRAPH

B4066:



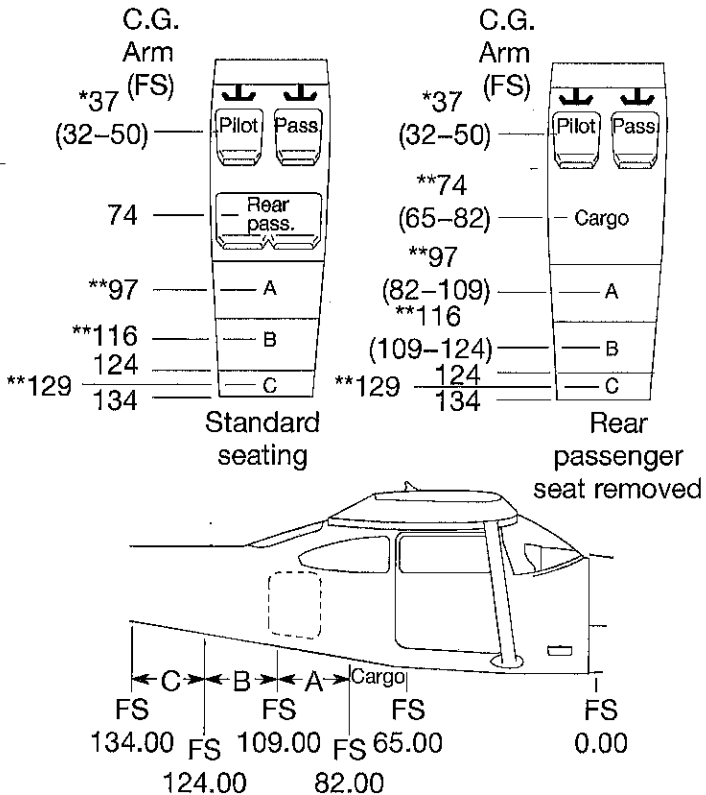
NOTE

Line representing adjustable seats shows the pilot and front seat 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 6-4

LOADING ARRANGEMENTS

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* Pilot or passenger center-of-gravity on adjustable seats positioned for average occupant. Numbers in parentheses indicate forward and aft limits of occupant center-of-gravity range.

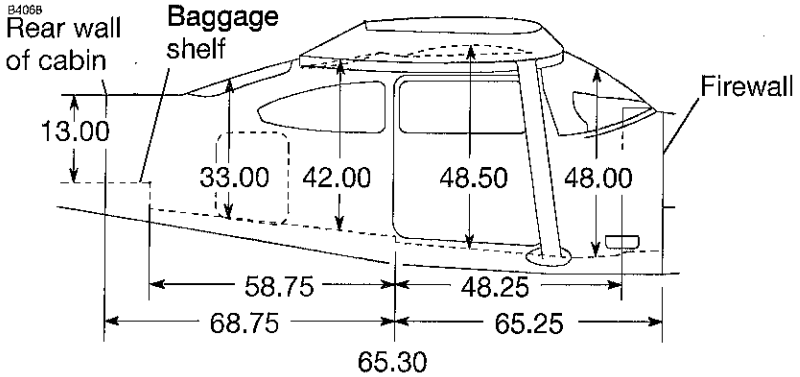
** Arms measured to the center of the areas shown.

NOTE

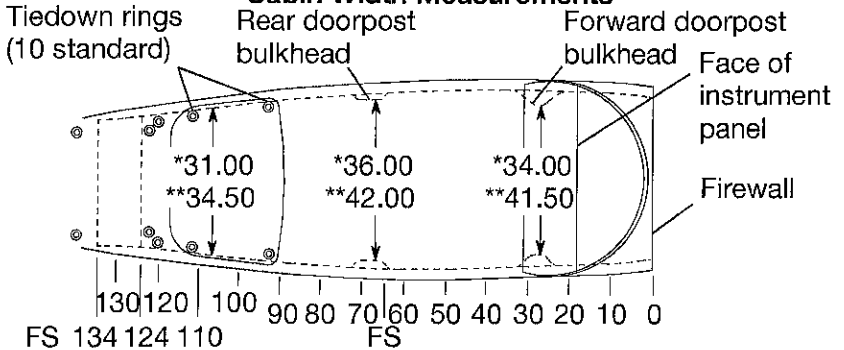
- The usable fuel C.G. arm is located at FS 46.50.
- The aft baggage wall (approximate FS 134.00) can be used as a convenient interior reference point for determining the location of baggage area fuselage stations.

➡ Figure 6-5

INTERNAL CABIN DIMENSIONS



Cabin Width Measurements



CODE

- *Cabin floor
- **Lower window line

65.30 Door Opening Dimensions

	Width (top)	Width (bottom)	Height (front)	Height (rear)
Cabin doors	32.00	36.50	41.00	38.50
Baggage door	15.75	15.75	22.00	20.50

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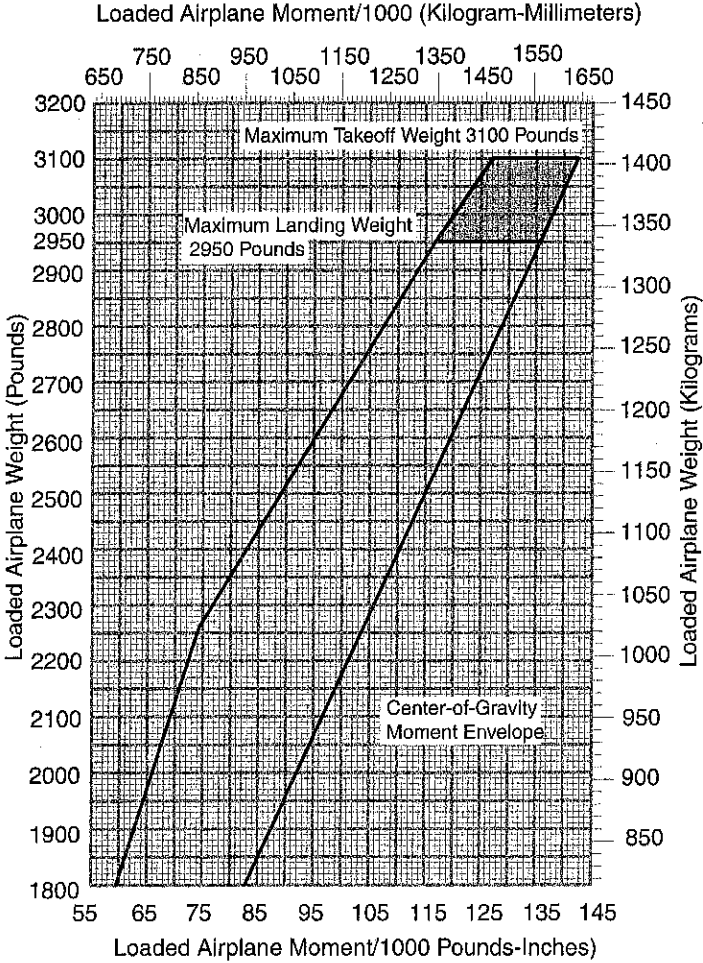
NOTE

- Maximum allowable floor loading: 200 pounds/square foot.
- All dimensions shown are in inches.

Figure 6-6

CENTER-OF-GRAVITY MOMENT ENVELOPE

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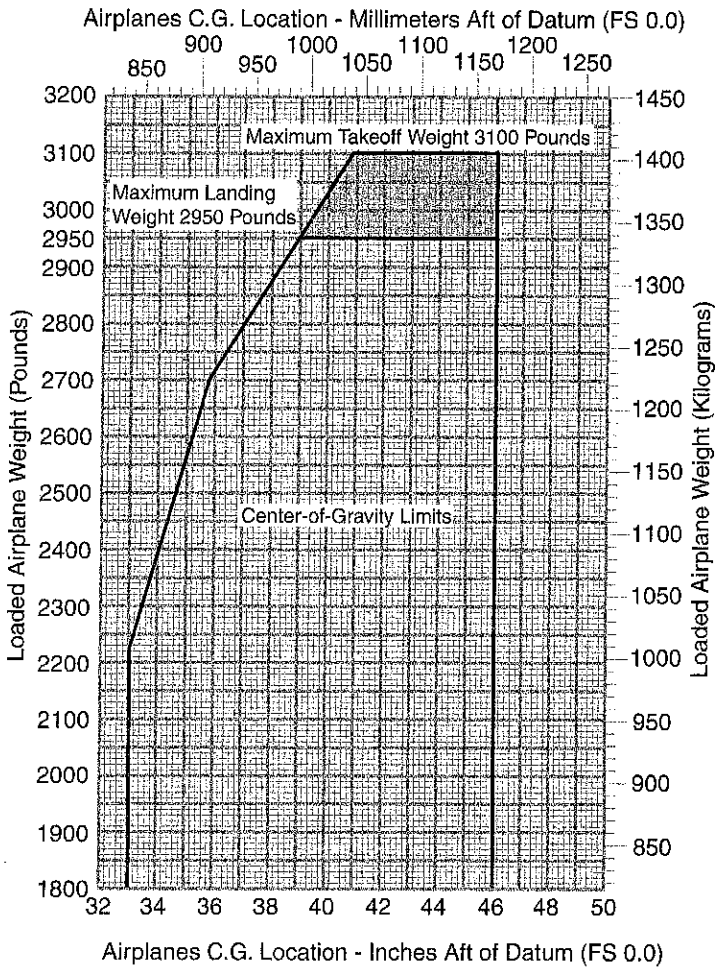
NOTE

If takeoff weight is more than maximum landing weight, allow flight time for fuel burn off to 2950 pounds before landing.

Figure 6-7

CENTER-OF-GRAVITY LIMITS

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NOTE

If takeoff weight is more than maximum landing weight, allow flight time for fuel burn off to 2950 pounds before landing.

 Figure 6-8