

Weight & Balance Worksheet

This worksheet performs all of the calculations necessary for proper aircraft loading. The first item in the list is used to define the Aircraft empty weight, Center of Gravity arm (Arm), and the moment (Mom). An “Item” is something that has an assigned weight and corresponding arm and/or moment. Additional Items can be added as necessary. The steps are described below in the context of solving a basic weight and balance problem.

Weight & Balance			
Item ►			Clear
Item	Arm (IN)	Weight (LB)	Moment (LB-IN)
Plane	101.40	1,495	151,593
Pilot-1	64.00	380	24,320
Pass-1	75.00	150	11,250
Fuel-1	96.00	180	17,280
TOTAL	92.72	2,205	204,443

Clear	Remove all points leaving the initial one and clears all values to 0.
Item ►	Select to add, insert, clear or delete an item in the list.
Arm	Stores the Arm of the item and computes the weight or moment.
Weight	Stores the Weight of the item and computes the arm or moment.
Moment	Stores the Moment of the item and computes the arm or weight.
TOTAL	Shows the total center of gravity arm, total weight and moment.
<p>NOTE: Tap the Arm, Weight or Moment heading to select the desire unit of the values in the corresponding column. To change the whole units in the worksheet select “Set Metric Units” or “Set US Units” from the [UNITS►] button in the Navigation Bar.</p>	

All the following examples use US units. So please select “Set US Units” from the [**UNITS►**] menu in the Navigation Bar.

Example 1:

Find the gross weight (GW) and center of gravity (CG), given:

1. Aircraft empty weight: 1,495 lbs weight, 151,593 lb-in moment
2. Pilot and passengers: 380 lbs, 64" arm
3. Rear-seat passenger: 150 lbs, 75" arm
4. Fuel: 180 lbs, 96" arm.

Solution:

Keystrokes	Description
[Clear]	Clears all variables to start a new calculation.
type 1495 and touch Plane Weight cell	Set weight to 1,495 LB to Plane item (empty plane weight).
type 151593 and touch Plane Moment cell	Set moment to 151,593 LB·IN to Plane item (empty plane moment) and the Arm (empty plane center of gravity) is automatically calculated: Arm = 101.40 IN
[Item▶] Add > Pilot	Append a Pilot item (Pilot-1).
type 380 and touch Pilot-1 Weight cell	Set weight to 380 LB to Pilot-1 item.
type 64 and touch Pilot-1 Arm cell	Set arm to 64 IN to Pilot-1 item and the moment is automatically calculated: Moment = 24,320 IN·LB
[Item▶] Add > Passenger	Append a Passenger item (Pass-1).
type 150 and touch Pass-1 Weight cell	Set weight to 150 LB to Pass-1 item.
type 75 and touch Pass-1 Arm cell	Set arm to 75 IN to Pass-1 item and the moment is automatically calculated: Moment = 11,250 IN·LB
[Item▶] Add > Fuel	Append a Passenger item (Pass-1).
type 180 and touch Fuel-1 Weight cell	Set weight to 180 LB to Fuel-1 item.
type 96 and touch Fuel-1 Arm cell	Set arm to 96 IN to Fuel-1 item and the moment is automatically calculated: the Fuel-1 Moment = 17,280 IN·LB and: Gross Weight = 2,205 LB Gross Center of Gravity = 92.72 IN Gross Moment = 204,443 LB·IN

Example 2:

Given the information above, find the GW and CG if the 150 lbs passenger exits the aircraft, and 50 lbs of fuel are added.

Solution:

Keystrokes	Description
type 0 and touch Pass-1 Weight cell	Set weight to 0 LB to Pass-1 item.
type 50 [STO] [+] and touch Fuel-1 Weight cell	Set add 50 LB to Fuel-1 weight and the moment is automatically calculated: the Fuel-1 Moment = 22,080 IN·LB and: Gross Weight = 2,105 LB Gross Center of Gravity = 94.06 IN Gross Moment = 197,993 LB·IN